CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Admiral	5Y22 (Ch. 5Y2)	188-2
AMC	20C2A, -1, 20CD2A, -1, 20T2A, -1, 24T2A, -1 Tel. Rec.	188-3
Arvin	7210CB, CM, 7212CFP, MEA, 7214CM, 7216CB, 7218CB, CM, 7219CM (Ch. TE-341-1) Tel. Rec.	188-4
CBS-Columbia	17C18, 17M18, 17T18 (Ch. 817, -1), 20M18, 20M28, 20T18 (Ch. 820, -1) Tel. Rec.	188-5
Dumont	RA-109FAS Tel. Rec. Prod. Chg. Bul. 54	188-1
Dumont	RA-130A Tel. Rec. Prod. Chg. Bul. 54	188-1
Hallicrafters	1010P, 1012P (Ch. A1200D, K1200D, W1200D), 1013C (Ch. F1200D), 1021P (Ch. D1200D, L1200D, X1200D), 1022C (Ch. G1200D), 1026P (Ch. D1200D, L1200D, X1200D), 1027C (Ch. G-1200P), 1111P (Ch. A1200D), 1113P (Ch. D1200D) Tel. Rec.	188-6
Hudson Electronics	374H	188-7
Masco	MA-125	188-8
Don McGohan	MG-30-B	188-9
Motorola	52M1U, 52M2U, 52M3U (Ch. HS-300)	188-10
Motorola	52R11, 52R12, 52R13, 52R14, 52R15, 52R16 (Ch. HS-289)	188-11
Philco	53-561, 53-562, 53-564	188-12
RCA Victor	1R81 (Ch. RC-1102A, B, C) Prod. Chg. Bul. 54	188-1
Truetone	2D1235A (Ch. 17MS34S) Tel. Rec.	188-13
Westinghouse	H-372P4, H-373P4, H-376P4 (Ch. V-2182-1), H-377 (Optional Pwr. Supply)	188-14

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L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 7 IN SET 110

Model
RA-109A FAS

Model RA-109A FAS is the same as Model RA-109A except for a new tuner (Part #8900304). This tuner adds another IF Amplifier stage for fringe area use.

A schematic of this tuner is given in fig. 1 below.

The RF Tuner portion of this receiver has been pre-aligned at the factory and is very stable and should not require adjustment in the field. For Video IF Alignment refer to table on reverse side.

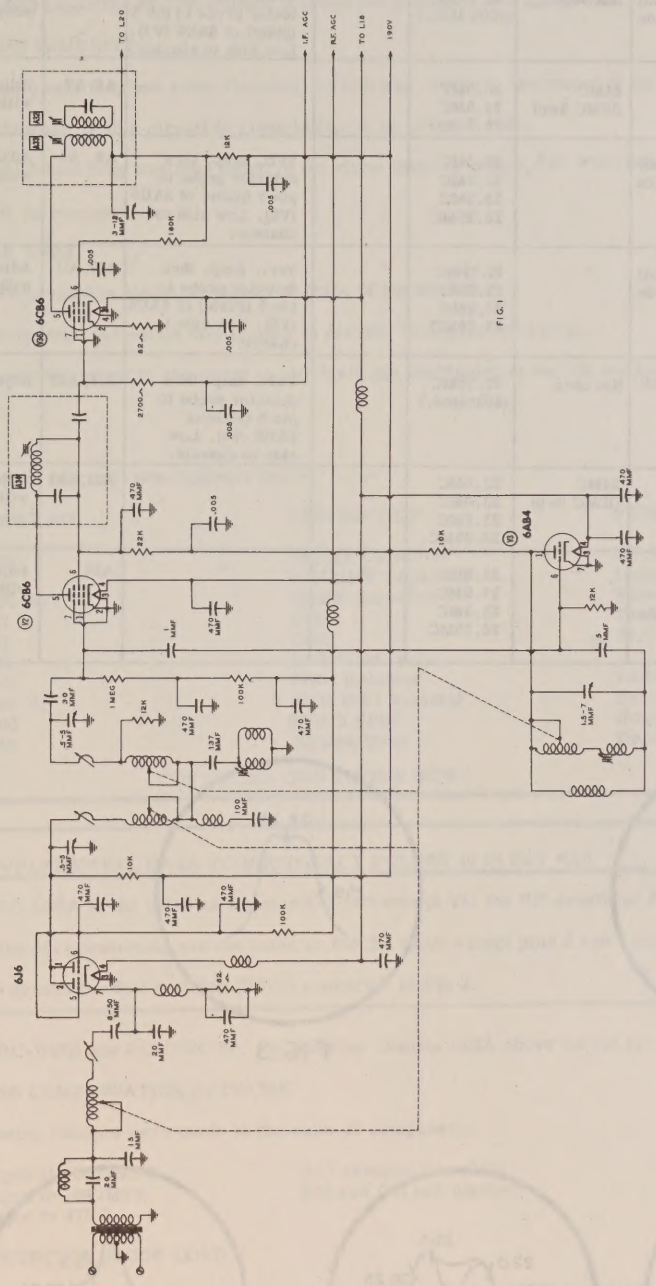

FIG. 1

DUMONT MODEL RA-109A FAS

(CONTINUED ON REVERSE SIDE)

PRODUCTION CHANGES
BULLETIN 54

PRODUCTION CHANGES
BULLETIN 54

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

Remove the following tubes: Tuner Oscillator V1 (6J6), Audio Output V20 (6V6) and Horizontal Oscillator V26 (6AK6). Remove the deflection amplifier protection fuse (M5). Adjust AGC Control (R10) fully counterclockwise. Turn Selector Switch to TV position.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	270MMF	High side to pin 1 (grid) of 6AU6 (V7). Low side to chassis.	24MC (10MC Swp)	22.0MC 25.5MC 26.25MC	Any	Vert. Amp. to point (A). Low side to chassis.	A1, A2	Adjust for response curve similar to fig.2. with markers as shown.
2.	"	"	"	25.5MC 26.25MC	"	Vert. amp. to pin 1 (grid) of 6AU6 (V21). Low side to chassis.	A3, A4	Adjust for response curve similiar to fig.3. with markers as shown.
3.	"	High side to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	Not used	21.75MC (400∿ Mod.)	"	Vert. amp. thru detector probe to pin 5 (plate) of 6AU6 (V7). Low side to chassis.	A5	Adjust for minimum 400∿ indication on scope.
4.	"	"	24MC (10MC Swp)	22.0MC 25.5MC 26.25MC	"	"	A6, A7	Adjust for response curve similiar to fig.4. with markers as shown.
5.	"	High side to pin 1 (grid) of 6AU6 (V5). Low side to chassis.	"	22.0MC 22.5MC 25.5MC 26.25MC	"	Vert. amp. thru detector probe to pin 5 (plate) of 6AU6 (V6). Low side to chassis.	A8, A9	Adjust for response curve similar to fig. 5 with markers as shown.
6.	"	High side to pin 1 (grid) of 6AU6 (V4). Low side to chassis.	"	21.75MC 22.0MC 25.5MC 26.25MC	"	Vert. Amp. thru detector probe to pin 5 (Plate) of 6AU6 (V5). Low side to chassis.	A10, A11	Adjust for response curve similar to fig. 6 with markers as shown.
7.	"	High side to pin 1 (grid) of 6CB6 (V36, Fig.1). Low side to chassis.	Not used	27.75MC (400∿Mod.)	"	Vert. amp. thru detector probe to pin 5 (plate)of 6AU6 (V4). Low side to chassis.	A12, A32	Adjust for minimum 400∿ indication on scope.
8.	"	"	24MC (10MC Swp)	22.0MC 23.0MC 25.5MC 26.25MC	"	"	A13, A33	Adjust for response curve similar to fig.7. with markers as shown.
9.	Direct	High side to ungrounded tube shield floatingover mixer tube (V2). Low side to chassis.	"	22.0MC 23.0MC 25.5MC 26.25MC	"	"	A34	Adjust for response curve similar to fig. 8. with markers as shown.

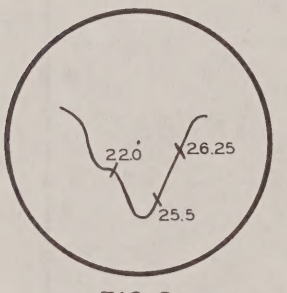

FIG.2

FIG.3

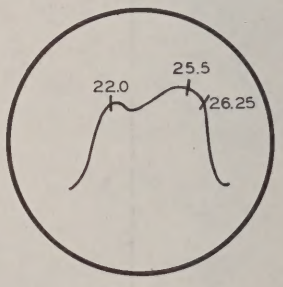

FIG.4

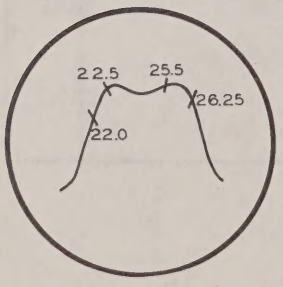

FIG.5

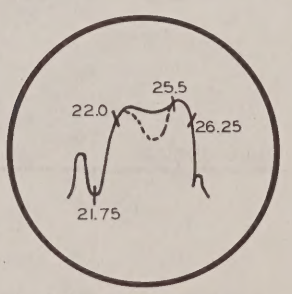

FIG.6

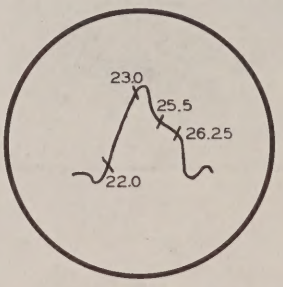

FIG.7

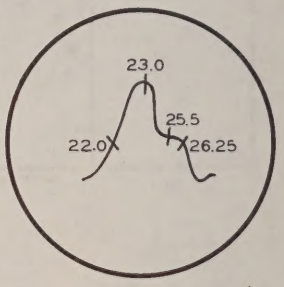

FIG.8

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 7 IN SET 110

DUMONT MODEL RA-130A

Model RA-130A

Model RA-130A is identical to Model RA-109A FAS except for the following changes which have been made to give a larger picture tube, greater sensitivity and increased noise immunity.

TO FACILITATE HORIZONTAL LINUARITY ADJUSTMENTS

Five 10KΩ , 2 watt resistors, connected in series, are added across the Horizontal Deflection Coil (Pins 5 and 7 of deflection yoke plug).

TO PROVIDE ADDITIONAL DECOUPLING

A .005MFD capacitor has been added between the bottom of R32 and ground.

TO IMPROVE NOISE IMMUNITY

A channel 5 beat trap and noise immunity switch was added at the output of the sync - Detector stage . A partial schematic of this circuit is given in fig. 9 on reverse side.

A channel 5 beat trap was also added to the video detector output. For a partial schematic of this circuit, see fig. 10 on reverse side.

LARGER PICTURE TUBE

A 21EP4A is used in Model RA-1304A in place of the 19AP4A.

A new horizontal deflection coil is used to provide 70 degree deflection.

Two correction magnets are added to eliminate pin cushioning at the top and bottom of the picture tube.

A list of the new part nos. appears below.

NEW PART NO.	DESCRIPTION	FUNCTION
03015790	20MMF Capacitor	RF Bypass
03015610	5000MMF Capacitor	Decoupling
03055500 (2)	5MMF Capacitor	Fixed Trimmer
21007132	Coil	78.75MC Trap
21007134	Coil	78.75MC Trap
21008871	Deflection Yoke	
02031940	27KΩ Resistor	Voltage Divider
02037890 (5)	10KΩ (2W) Resistor	Horizontal Linearity
05004200	Switch SPST	Noise Immunity Switch
25006860	21EP4A Tube	Picture Tube

(CONTINUED ON REVERSE SIDE)

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 10 IN SET #156

RCA MODEL 1R81 (Ch.RC-1102A, B, C)

Chassis RC-1102A

Chassis RC-1102A is the same as Chassis RC-1102 except V1, the RF Amplifier, has been changed to a 6CB6 tube, the pin connections are the same as for the 6AU6 except pins 2 and 7 are reversed. Pin 7 is connected to ground the 68Ω resistor (R5) is connected to Pin 2.

Chassis RC-1102B RC-1102C

Chassis RC-1102B and RC-1102C are the same as Chassis 1102A above except for the following:

THE TONE COMPENSATION NETWORK

The following changes were made in the value of components:

C32 changed to .0047MFD
C33 changed to .047MFD
R32 changed to 47KΩ
R33 changed 5 to 10KΩ
R31 and C31 are omitted

RATIO DETECTOR DIODE LOAD

R28, the Ratio Detector Diode Load, has been replaced by two 18KΩ resistors in series. R29 is now connected to the center point of these two resistors.

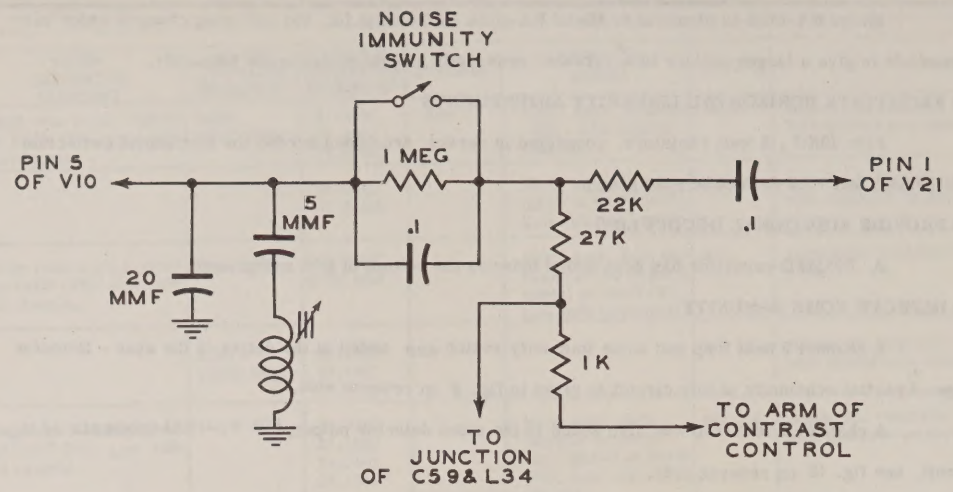
NOISE
IMMUNITY
SWITCH
PIN 5
OF V10
1 MEG
22K
PIN 1
OF V21
5
MMF
.1
.1
27K
20
MMF
1K
TO ARM OF
CONTRAST
CONTROL
TO
JUNCTION
OF C59& L34

FIG. 9

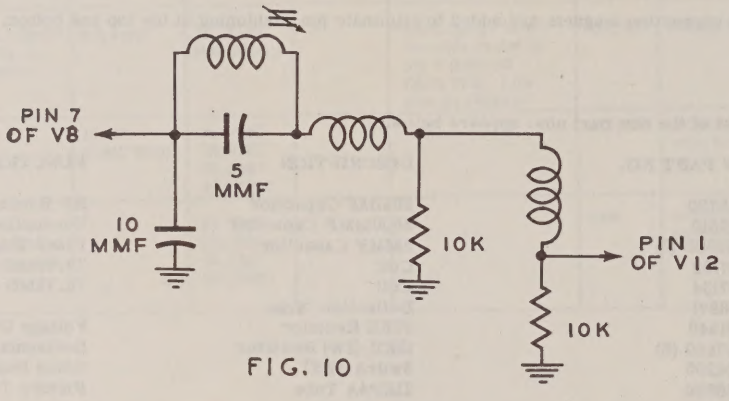
PIN 7
OF V8
5
MMF
10
MMF
10K
PIN 1
OF V12
10K

FIG. 10

ADMIRAL CHASSIS 5Y2

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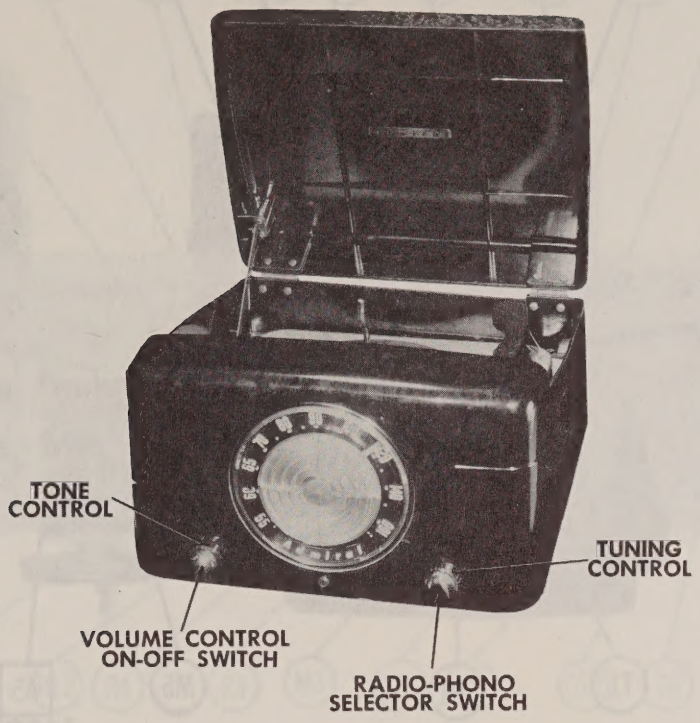
ADMIRAL CHASSIS 5Y2



ADMIRAL CHASSIS 5Y2

TRADE NAME	Admiral Model 5Y22 (Ch. 5Y2)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver
TUBES (Five)	Types 12SA7 Conv., 12SK7 IF Amp., 12SQ7 Det.-AVC-AF Amp., 50L6GT Audio Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .24 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540 - 1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	250MMF	High side to stator plates of rear section of tuning gang. Low side to B-.	455 KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust for maximum output.
2.	"	"	1620 KC	"	"	A5	"
3.		Loop	1400 KC	Tune to 1400 KC signal	Not used	A6	Set pointer to horizontal position at high frequency end of dial. Replace chassis and antenna in cabinet. (Rotate tuning capacitor until pointer is vertical to permit mounting chassis in cabinet) Fashion loop of several turns of wire and radiate signal into loop of receiver. With receiver tuned to 1400KC signal adjust A6 for maximum output.

FOR SERVICE INFORMATION ON ADMIRAL RECORD CHANGER UNIT- MODEL RC550 -SEE PHOTOFACT SET #185, FOLDER #2.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

ADMIRAL
MODEL 5Y22 (Ch. 5Y2)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Converter	12SA7	12SA7	8R	
V2	IF Amplifier	12SK7	12SK7	8N	
V3	Det-AVC-AF Amp.	12SQ7	12SQ7	8Q	
V4	Audio Output	50L6GT	50L6GT	7AC	
V5	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	30	150	67A 14-1	PRS150/30-30-30		EDL33215C		3N533	TVA-3433	Yellow
B	30	150		PRS25/25				TC45	TVA-1205	Red
C	20	150								Blue
D	20	25								Green
C2	50		65C 6-4	SI50	D6-500	TM5Q5	GP1K-500	UC-545	5GA-Q5	
C3	.05	400	64B 1-22	P488-05	DF-503	PTE4S5		PT415	4TM-S5	Note 1.
C4	.1	200	64B 1-30	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C5A	100			SI100		TM5T1		UC-531		
B	100		♦63A 3-1	SI-100	♦PC-50	TM5T1	♦1403-01	UC-531	♦100C1	
C6	500		65C 6-6	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C7	.01	400	64B 1-25	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C8	.1	200	64B 1-30	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C9	500		65C 6-6	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C10	.01	400	64B 1-25	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C11	.0022	600	64B 1-14	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C12	.01	400	64B 1-25	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C13	.03	400	64B 1-23	P488-03		PTE6S3		PT613	6T M-S3	
C14	.1	200	64B 1-30	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C15	.05	400	64B 1-22	P488-05		PTE4S5		PT415	4TM-S5	
C16	.18	200	64A 2-2							

Note 1. Used only in sets whose model number end with UL.
♦ Items C5A, C5B and R4 are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2 Meg	½	75B11-8	QJ-320R		SBBT-502-S	UF26L	Tone-Panel
B	1 Meg	½					UR16-T35	Volume Tap ⓐ 350KΩ-Rear
C	Switch						US-26	Attach to R1B

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-139 & P1-028 (Panel) B19-137X & R2-115 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	NOTES
R2	22KΩ	½	60B8-223	BTS-22K	
R3	1 Meg	½	60B8-105	BTS-1 Meg	
R4	47KΩ	½	♦ 63A3-1	BTS-47K	
R5	27KΩ	½	60B8-273	BTS-27K	
R6	4.7Meg	½	60B8-475	BTS-4.7Meg	
R7	470KΩ	½	60B8-474	BTS-470K	
R8	47KΩ	½	60B8-473	BTS-47K	

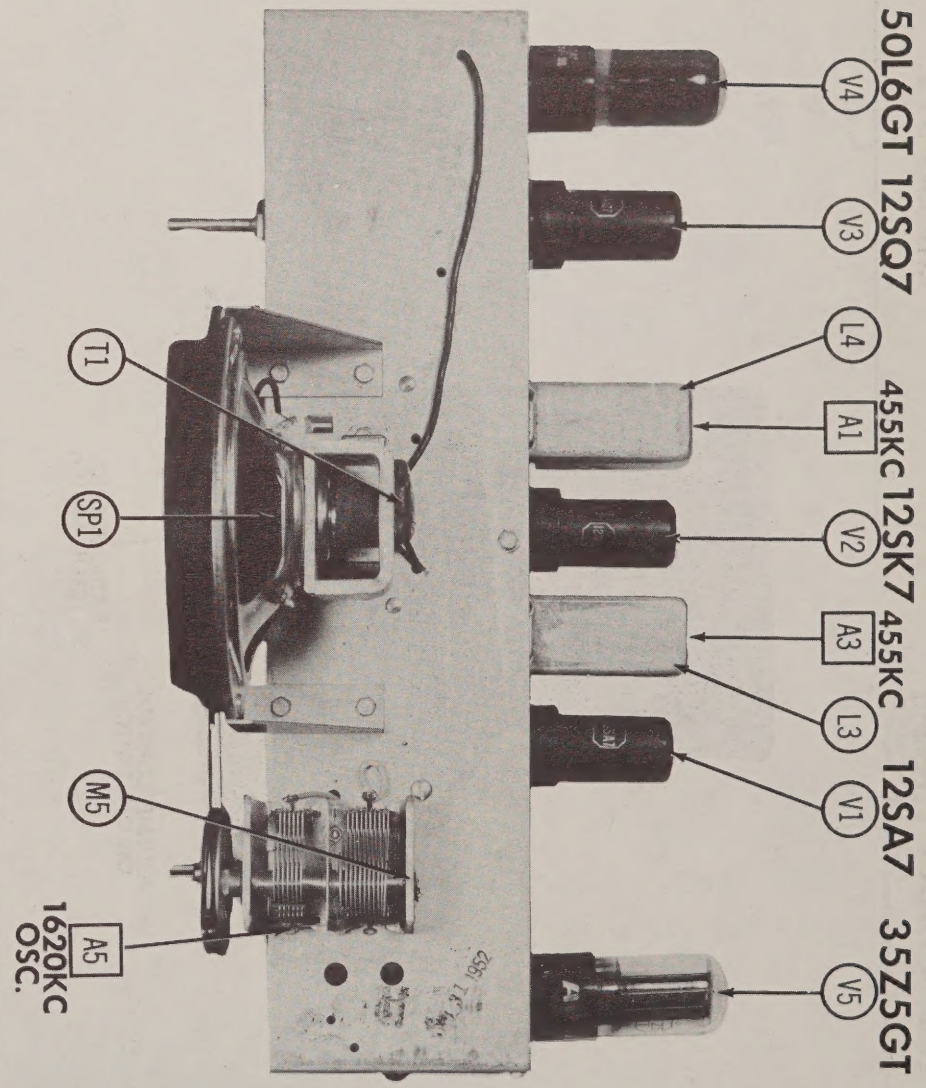
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	NOTES
R9	470KΩ	½	60B8-474	BTS-470K	
R10	150Ω	1	60B14-151	BTA-150	
R11	33Ω	1	60B28-3		
R12	220Ω	1	60B28-7	BTA-220	
R13	1000Ω	1	60B28-2	BTA-1000	
R14	150KΩ	½	60B8-154	BTS-150K	

♦ Items R4, C5A, C5B are combined in one one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.05KΩ	3Ω	210Ω	.7Ω	79A11-3	A-3876	A-2928	RO-2 ①	S-2X	① Drill one new mtg. hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5"	PM	3Ω	78B39-3	ST-105 Mod. P5-X	5A1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ADMIRAL PART No.	MERIT PART No.	
L1	Loop Ant.	.3Ω		69B144		Includes Ant. Trimmer
L2	Osc. Coil	6.3Ω		69A52		Tap @ 5.5Ω
L3	Input IF	26Ω	26Ω	72B50	BC-368	
L4	Output IF	24.5Ω	24.5Ω	72B51	BC-372	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA						REMARKS
	ADMIRAL PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1	409A13	AC-AG-J	A-AG	W26B	A66U	33	0-2 or S-2

ASTATIC SHURE AND ELECTRO VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

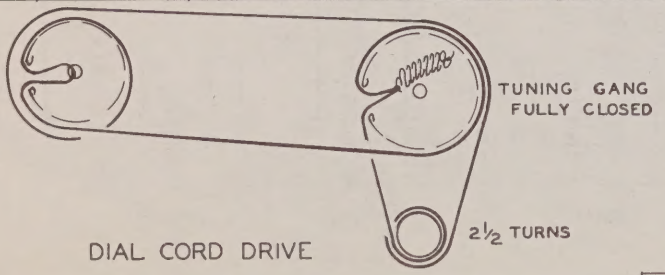
ITEM No.	REPLACEMENT DATA			REMARKS
	ADMIRAL PART No.	WALCO PART No.	JENSEN PART No.	
M2	98A15-19	W-30AGA or W-30AGS	JP-312	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					ADMIRAL PART No.		
M3	Bayonet	6-8	.15	Brown	81A1-8		Type #47

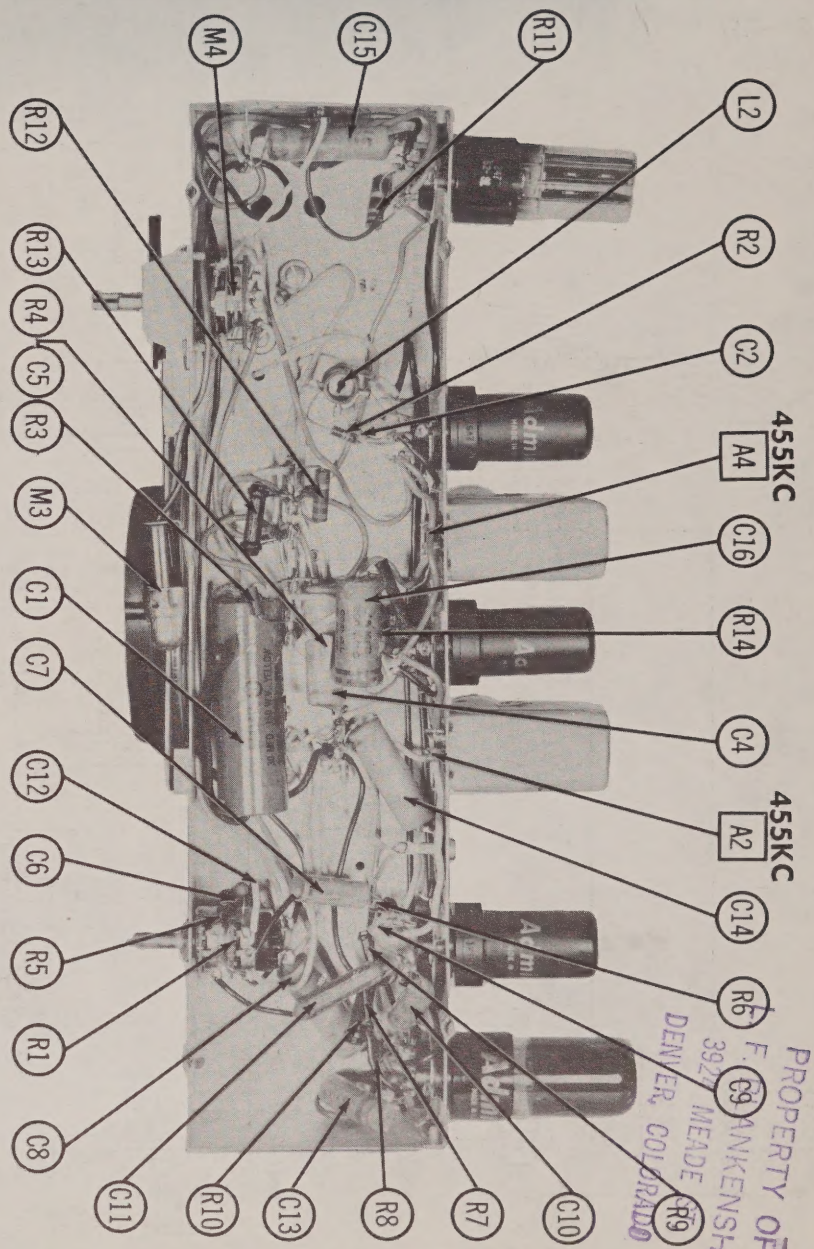
MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	Switch	77A28-1	Radio-Phono (Motor Off) Phono (Motor on)
M5	Tuning Capacitor	68B30-1	11-344MMF - 18-152MMF
A6	Trimmer	66A33	Ant. (3-30MMF)
	Knob	33D55-7	Tuning
	Knob	33D55-43	Radio-Phono
	Knob	33D55-47	Off/on Volume
	Knob	33D55-9	Tone
	Cabinet	34D28-2	Bottom Less Lid
	Cabinet	34D28-6	Lid only
	Escutcheon	23C51-2	Dial
	Escutcheon	23A8-1	Ring (Gold Trim)



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



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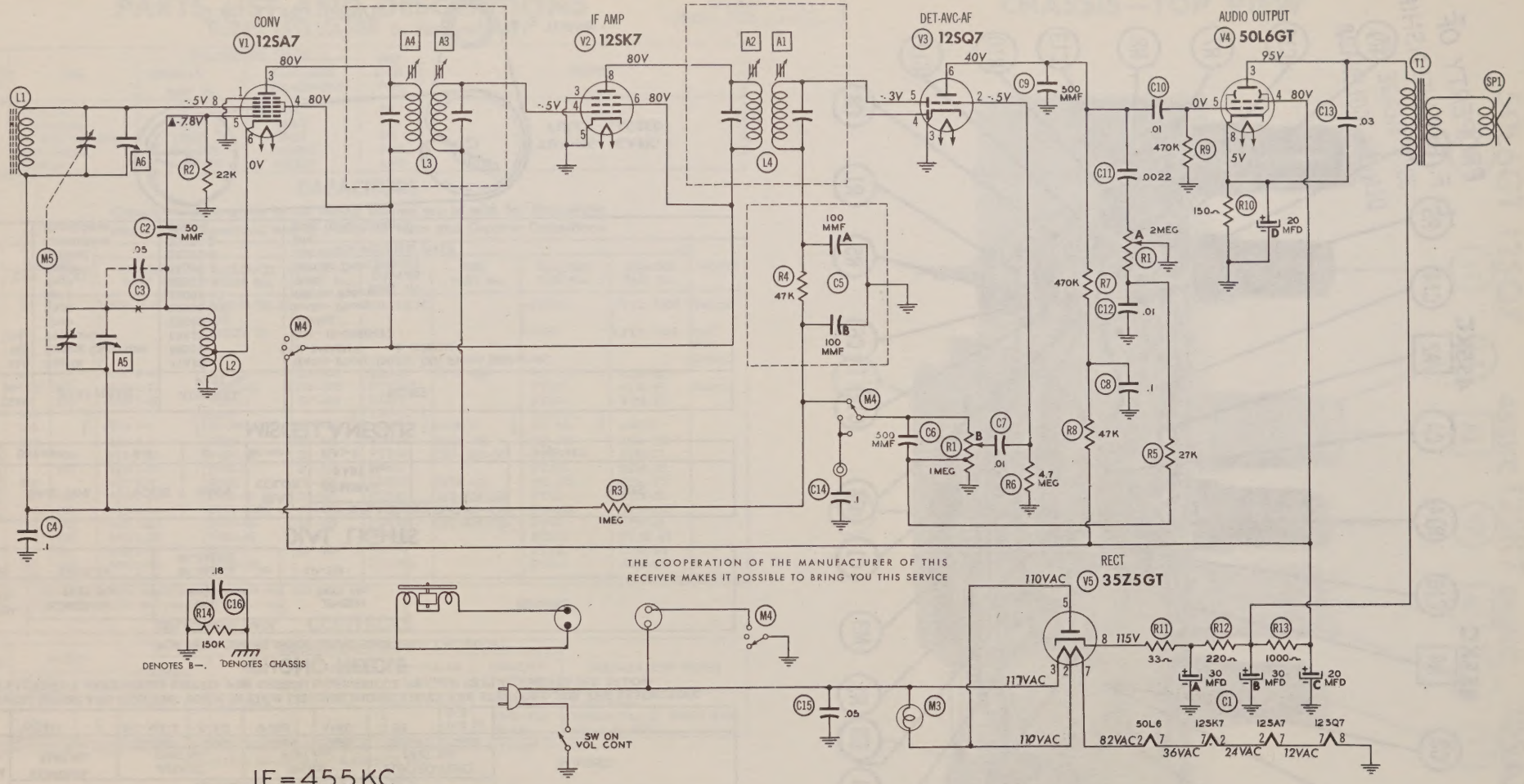

IF=455KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1.	12SA7	¶0Ω	24Ω	†1.2KΩ	†1.2KΩ	22KΩ	.8Ω	12Ω	1.8Meg
V 2	12SK7	¶0Ω	24Ω	0Ω	1.8Meg	0Ω	†1.2KΩ	36Ω	†1.2KΩ
V 3	12SQ7	¶0Ω	4.7Meg	0Ω	INF	800KΩ	†518KΩ	12Ω	0Ω
V 4	50L6GT	INF	86Ω	†463Ω	†1.2KΩ	470KΩ	†48KΩ	36Ω	150Ω
V 5	35Z5GT	INF	121Ω	113Ω	121Ω	113Ω	†33Ω	86Ω	25KΩ

ALL MEASUREMENTS TAKEN IN RADIO POSITION ONLY
† MEASURED FROM PIN 8 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER
¶ MEASURED FROM CHASSIS

FUNCTION SWITCH SHOWN IN "RADIO" POSITION.
SWITCH SEQUENCE:
1. RADIO
2. PHONO (MOTOR OFF)
3. PHONO (MOTOR ON)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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188-2

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

*TRADE MARK

AMC MODELS 20C2A, -1, 20CD2A, -1, 20T2A, -1, 24T2A, -1

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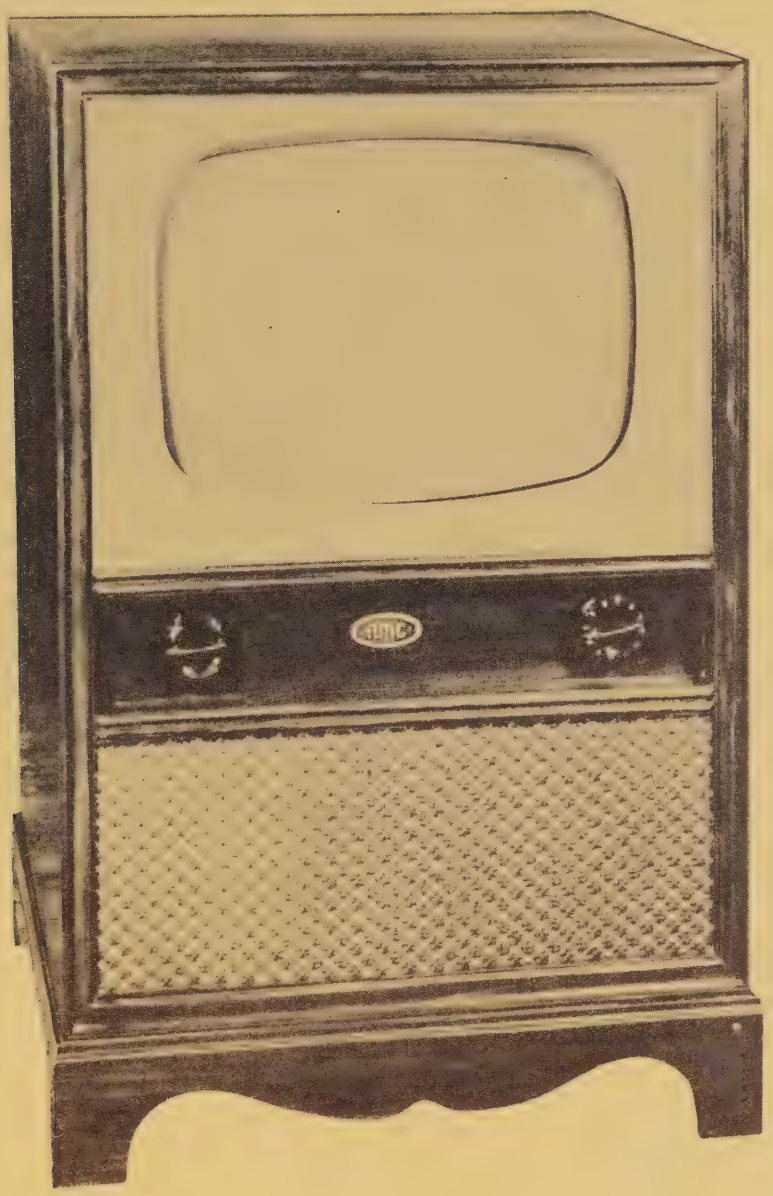

AMC MODELS 20C2A, -1, 20CD2A, -1, 20T2A, -1, 24T2A, -1

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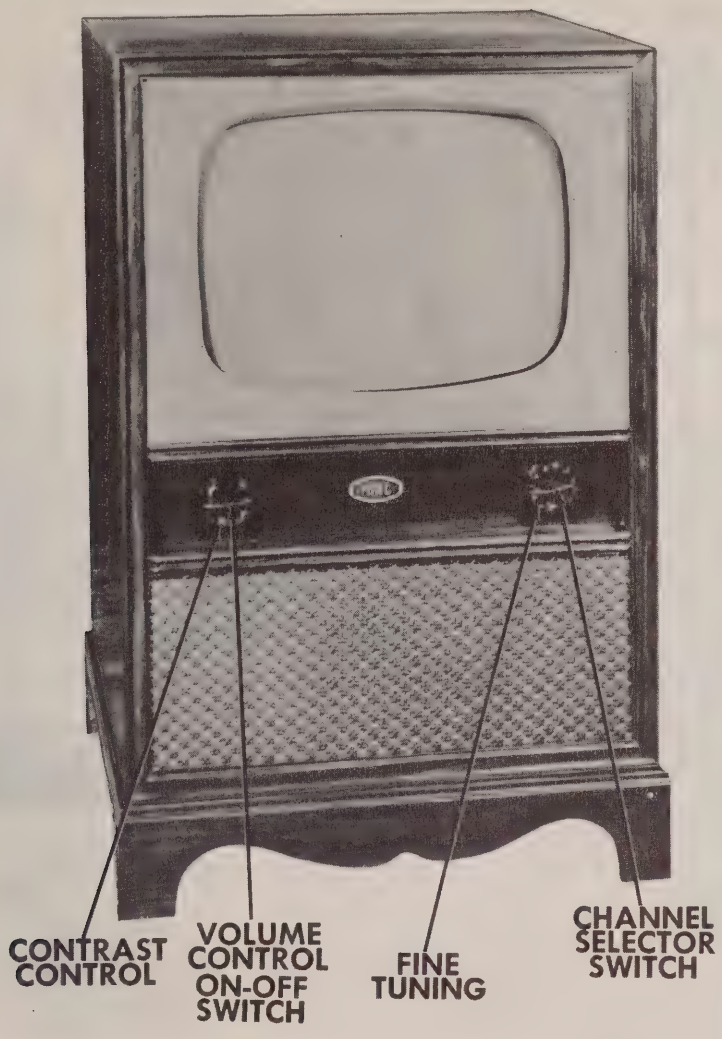

AMC MODELS 20C2A, -1, 20CD2A, -1, 20T2A, -1, 24T2A, -1

TRADE NAME	AMC Models 20C2A, 20C2A-1, 20CD2A, 20CD2A-1, 20T2A, 20T2A-1, 24T2A, 24T2A-1
SUPPLIER	Associated Merchandising Corp., 1440 Broadway, New York 14, N.Y.
TYPE SET	Television Receiver
TUBES	Nineteen
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 1.94 Amp. @ 117 Volts AC
TUNING RANGE-	Channels 2 thru 13

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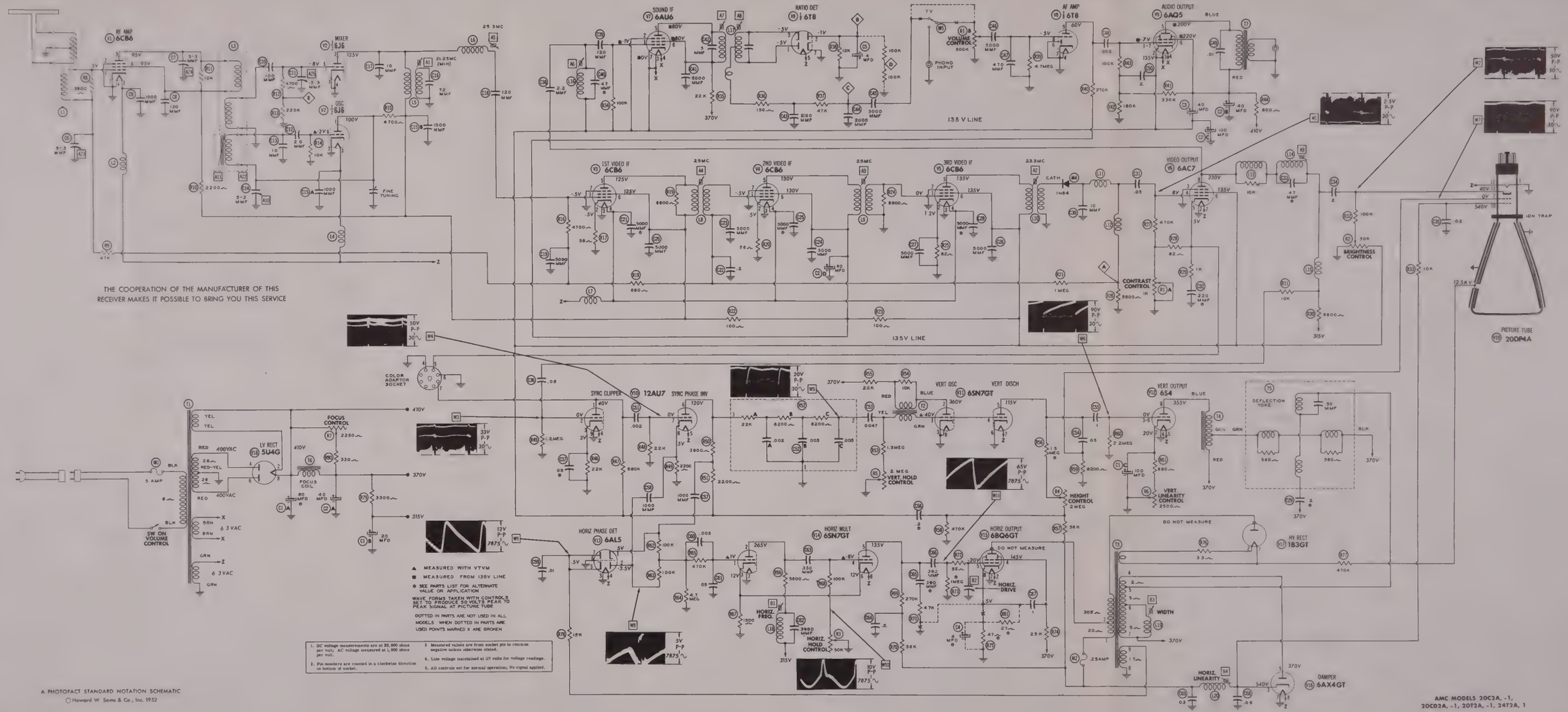
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RF AMP V1 6CB6
MIXER V2 6J6
OSC V2 6J6
SOUND IF V7 6AU6
RATIO DET V8 6T8
AF AMP V9 6T8
AUDIO OUTPUT V9 6AQ5
VOLUME CONTROL 500K
PHONO INPUT
135 V LINE
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO OUTPUT V6 6AC7
CONTRAST CONTROL
BRIGHTNESS CONTROL
PICTURE TUBE V19 20DP4A
ION TRAP
COLOR ADAPTOR SOCKET
SYNC CLIPPER V10 12AU7
SYNC PHASE INV
VERT OSC V11 6SN7GT
VERT DISCH
VERT OUTPUT V12 6S4
VERT LINEARITY CONTROL
HEIGHT CONTROL 2 MEG
VERT. HOLD CONTROL
DEFLECTION YOKE
HORIZ PHASE DET V13 6AL5
HORIZ MULT V14 6SN7GT
HORIZ OUTPUT V15 6BQ6GT
HORIZ. DRIVE
HORIZ. FREQ.
HORIZ. HOLD CONTROL
HORIZ. LINEARITY
WIDTH
DAMPER V16 6AX4GT
HV RECT V17 1B3GT
LV RECT V18 5U4G
FOCUS CONTROL
FOCUS COIL
FINE TUNING
SW ON VOLUME CONTROL
DO NOT MEASURE
▲ MEASURED WITH VTVM
■ MEASURED FROM 135V LINE
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 90 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
1. DC voltage measurements are at 20,000 ohms per volt; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; No signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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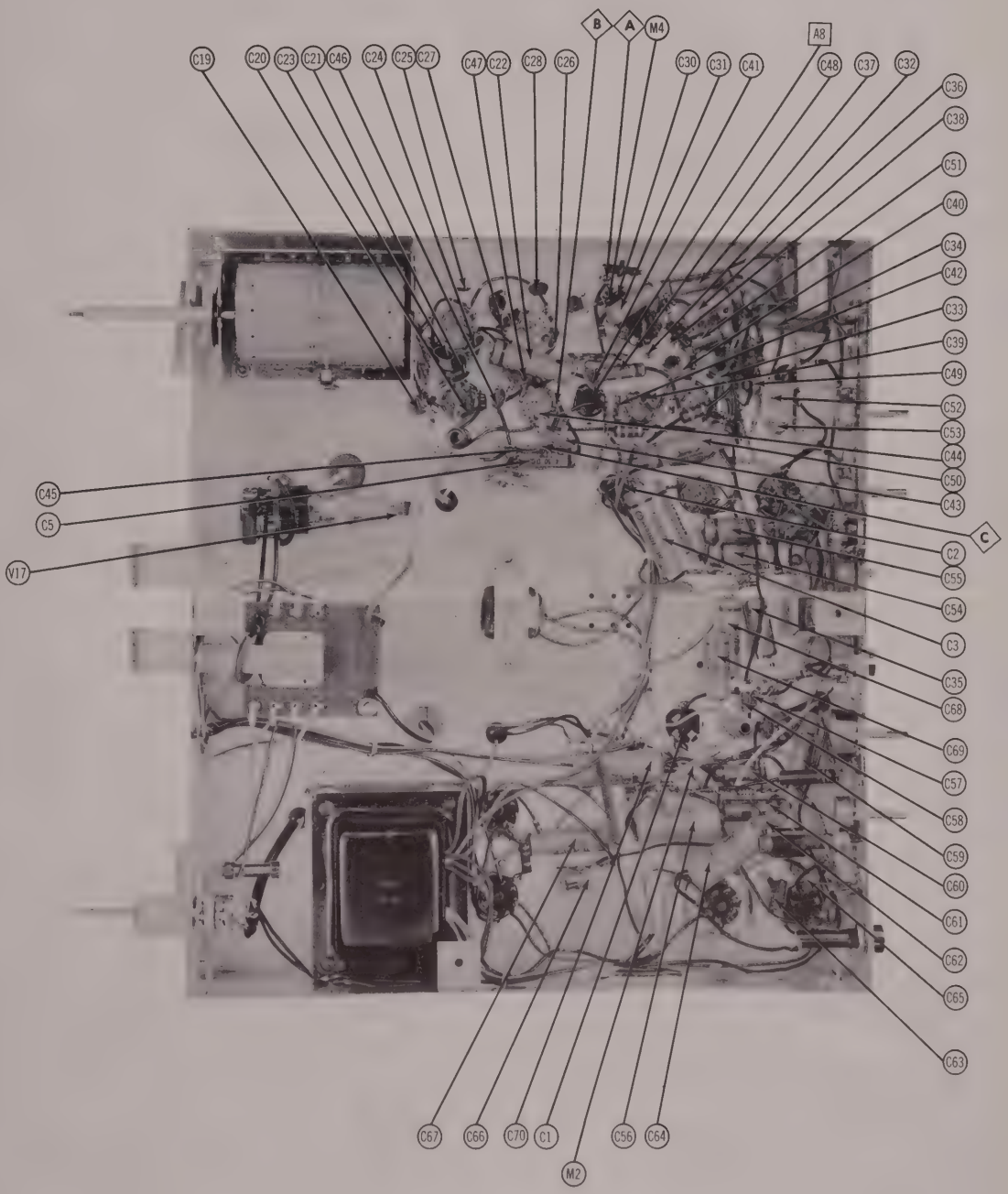
AMC MODELS 20C2A, -1, 20CD2A, -1, 20T2A, -1, 24T2A, 1

CHASSIS TOP VIEW



DENVER, COLORADO

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

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3924 ...
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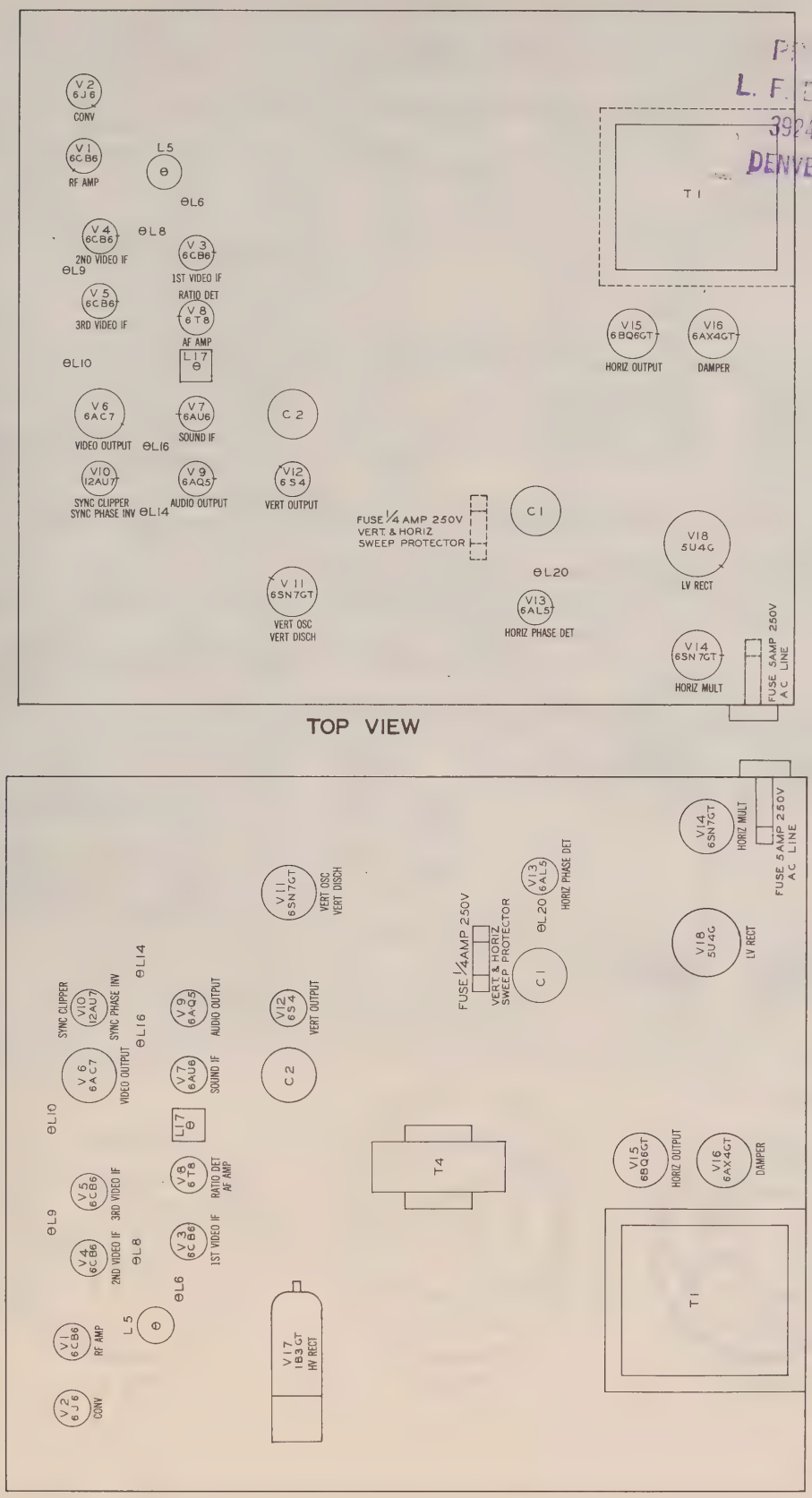


TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative side of a 3 volt battery to the ungrounded side of C23. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	21.25MC	Any	DC probe to Point A. Low side to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	23.3MC	"	"	A2	Adjust for maximum deflection.
3.	"	"	25MC	"	"	A3, A4	"
4.	"		25.3MC	"	"	A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
Leave the 3 volt battery connected as before.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to an ungrounded tube shield floating over dummy converter tube.	24MC (10MC swp.)	21.25MC 25.75MC	Any	Vert. amp. to Point A. Low side to chassis.		Check for response curve similar to fig. 1 with video marker at 50%. If necessary readjust A2 thru A5 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from Point B to chassis. The junction of these two resistors is alignment Point D as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	.01MFD	High side to Point A. Low side to chassis.	4.5MC (unmod.)	Any	DC probe to Point B. Common to chassis.	A6, A7	Adjust for maximum deflection.
7.	"	"	"	"	DC probe to Point C. Common to Point D.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.01MFD	High side to Point A. Low side to chassis.	4.5MC (450KC swp.)	4.5MC	Any	Vert. amp. to Point B. Low side to chassis.	A6, A7	Disconnect stabilizor capacitor C5. Adjust for maximum amplitude and symmetry as per fig. 2.
7.	"	"	"	"	"	Vert. amp. to Point C. Low side to chassis.	A8	Reconnect capacitor C5. Adjust so that 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.01MFD	High side to Point A. Low side to chassis.	4.5MC (unmod.)	Any	DC probe thru crystal diode detector (fig.4) to pin 11 of picture tube. Common to chassis.	A9	Adjust for MINIMUM deflection.

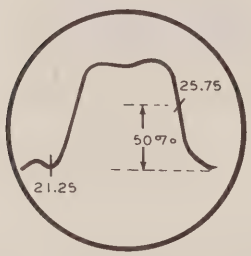


FIG.1

FIG. 2

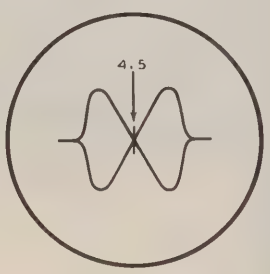


FIG. 3

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A10. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of A10 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.
Remove the dummy converter tube and replace the original 6J6 in its socket.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC swp.)	211.25MC 215.75MC	13	Vert. amp. to Point (A) Low side to chassis.	A11	Adjust to place sound marker in 21.25MC trap notch as in fig. 5. Video marker should be at 50% response.
			207MC (10MC swp.)	205.25MC 209.75MC	12		A12	
			201MC (10MC swp.)	199.25MC 203.75MC	11		A13	
			195MC (10MC swp.)	193.25MC 197.75MC	10		A14	
			189MC (10MC swp.)	187.25MC 191.75MC	9		A15	
			183MC (10MC swp.)	181.25MC 185.75MC	8		A16	
			177MC (10MC swp.)	175.25MC 179.75MC	7		A17	
			85MC (10MC swp.)	83.25MC 87.75MC	6		A18	
			79MC (10MC swp.)	77.25MC 71.75MC	5		A19	
			69MC (10MC swp.)	67.25MC 71.75MC	4		A20	
			63MC (10MC swp.)	61.25MC 65.75MC	3		A21	
			57MC (10MC swp.)	55.25MC 59.75MC	2		A22	

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC swp.)	205.25MC 209.75MC	12	Vert. amp. thru 47KΩ to Point (E) Low side to chassis.	A23, A24 A25	Adjust for response curve of maximum amplitude and symmetry as per fig. 6 with markers above 90% response.
11.	"	"	213MC (10MC swp.)	211.25MC 215.75MC	13	"		Check all channels for proper response. If markers fall below 70% on any channel make slight compromise adjustments of A23, A24 and A25 on that channel then recheck all other channels to see that they have not been seriously affacted.
			201MC (10MC swp.)	199.25MC 203.75MC	11			
			195MC (10MC swp.)	193.25MC 197.75MC	10			
			189MC (10MC swp.)	187.25MC 191.75MC	9			
			183MC (10MC swp.)	181.25MC 185.75MC	8			
			177MC (10MC swp.)	175.25MC 179.75MC	7			
			85MC (10MC swp.)	83.25MC 87.75MC	6			
			79MC (10MC swp.)	77.25MC 81.75MC	5			
			69MC (10MC swp.)	67.25MC 71.75MC	4			
			63MC (10MC swp.)	61.25MC 65.75MC	3			
			57MC (10MC swp.)	55.25MC 59.75MC	2			

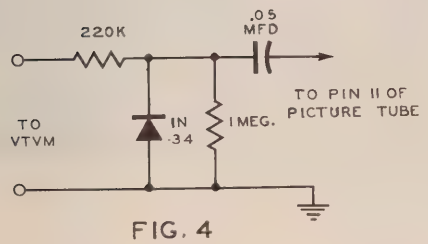


FIG. 4

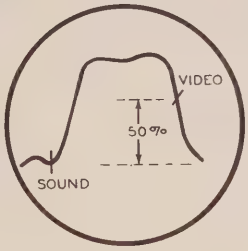


FIG. 5

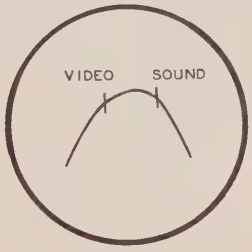


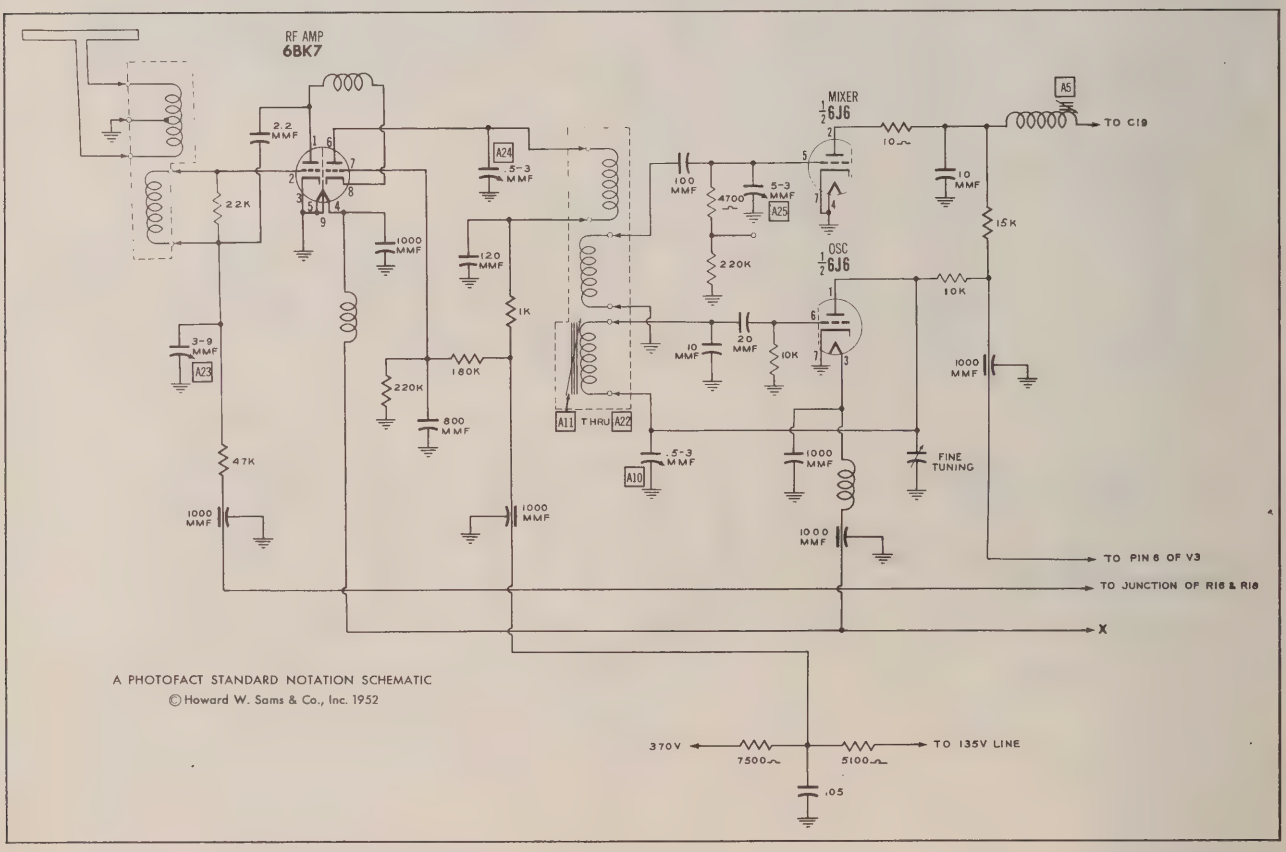
FIG. 6

L. F. D.
3924
DENVER, COLORADO

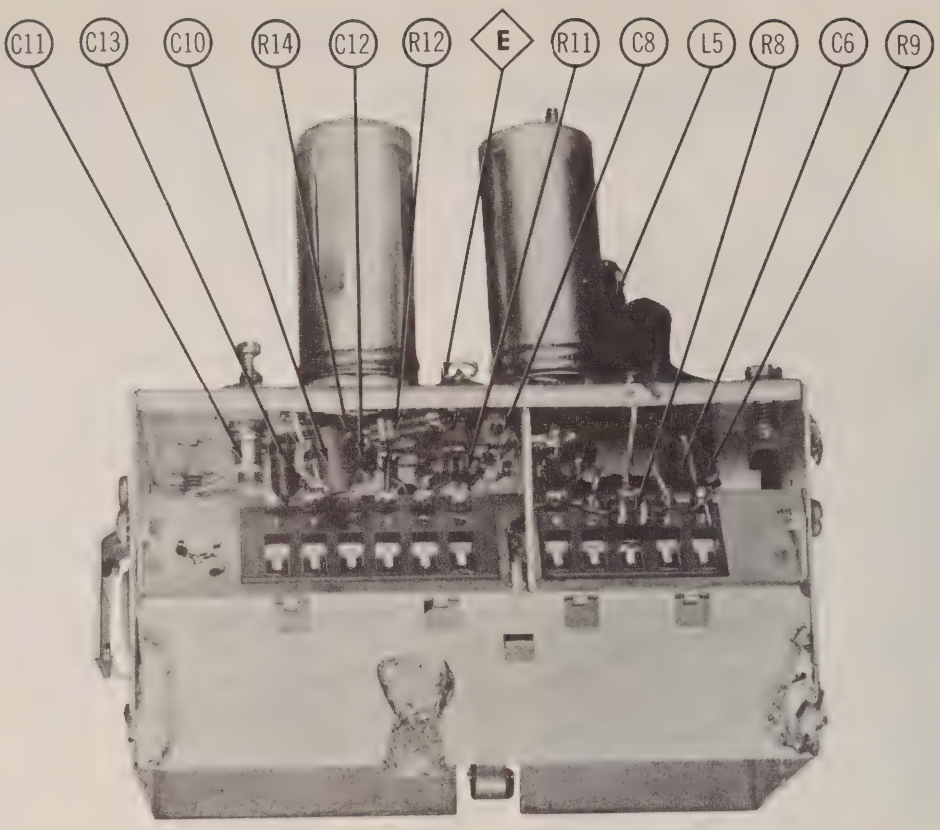
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	1Meg	0Ω	.1Ω	0Ω	■2.4KΩ	■2.4KΩ	0Ω		
V 2	6J6	■4.9KΩ	■200Ω	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	56Ω	0Ω	.1Ω	■200Ω	■200Ω	0Ω		
V 4	6CB6	1Meg	56Ω	0Ω	.1Ω	■100Ω	■100Ω	0Ω		
V 5	6CB6	.2Ω	82Ω	0Ω	.1Ω	■0Ω	■0Ω	0Ω		
V 6	6AC7	0Ω	0Ω	0Ω	470KΩ	390Ω	■0Ω	.1Ω	†10KΩ	
V 7	6AU6	■100KΩ	■0Ω	■0Ω	■.1Ω	†22KΩ	†22KΩ	■0Ω		
V 8	6T8	INF	12KΩ	INF	0Ω	.1Ω	0Ω	0Ω	4.7MEG	■270KΩ
V 9	6AQ5	240KΩ	40KΩ	■0Ω	■.1Ω	†1.1KΩ	†800Ω	240KΩ		
V 10	12AU7	■680KΩ	1.2Meg	22KΩ	.1Ω	.1Ω	■6.1KΩ	22KΩ	2.2KΩ	0Ω
V 11	6SN7GT	2.8Meg	†22KΩ	0Ω	2.8Meg	#2.5Meg	0Ω	.1Ω	0Ω	
V 12	6S4	INF	1.6KΩ	2.2Meg	0Ω	.1Ω	2.2Meg	INF	INF	†1.4KΩ
V 13	6AL5	4.8Meg	4.8Meg	0Ω	.1Ω	15KΩ	0Ω	15KΩ		
V 14	6SN7GT	5.1Meg	†9.1KΩ	1.5KΩ	140KΩ	#325KΩ	1.5KΩ	0Ω	.1Ω	
V 15	6BQ6GT	INF	.1Ω	INF	†25KΩ	1Meg	INF	0Ω	47Ω	TOP CAP #42Ω
V 16	6AX4GT	†230Ω	INF	480KΩ	INF	†232Ω	INF	0Ω	.1Ω	
V 17	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				TOP CAP #347Ω
V 18	5U4G	INF	45KΩ	INF	28Ω	INF	26Ω	INF	45KΩ	
V 19	20DP4A	0Ω	8.2KΩ	PIN 10 #10KΩ	PIN 11 110KΩ	PIN 12 .1Ω				

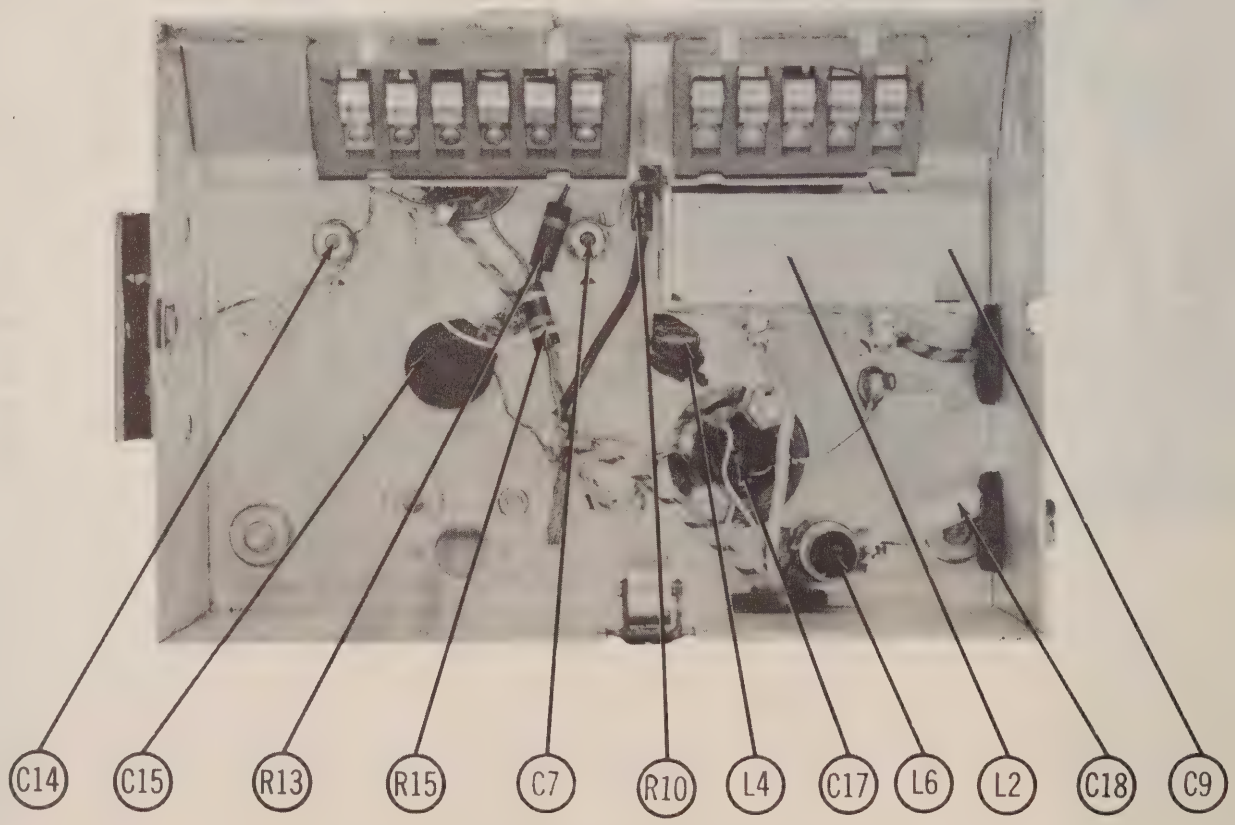
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V18
■ MEASURED FROM 135 VDC LINE



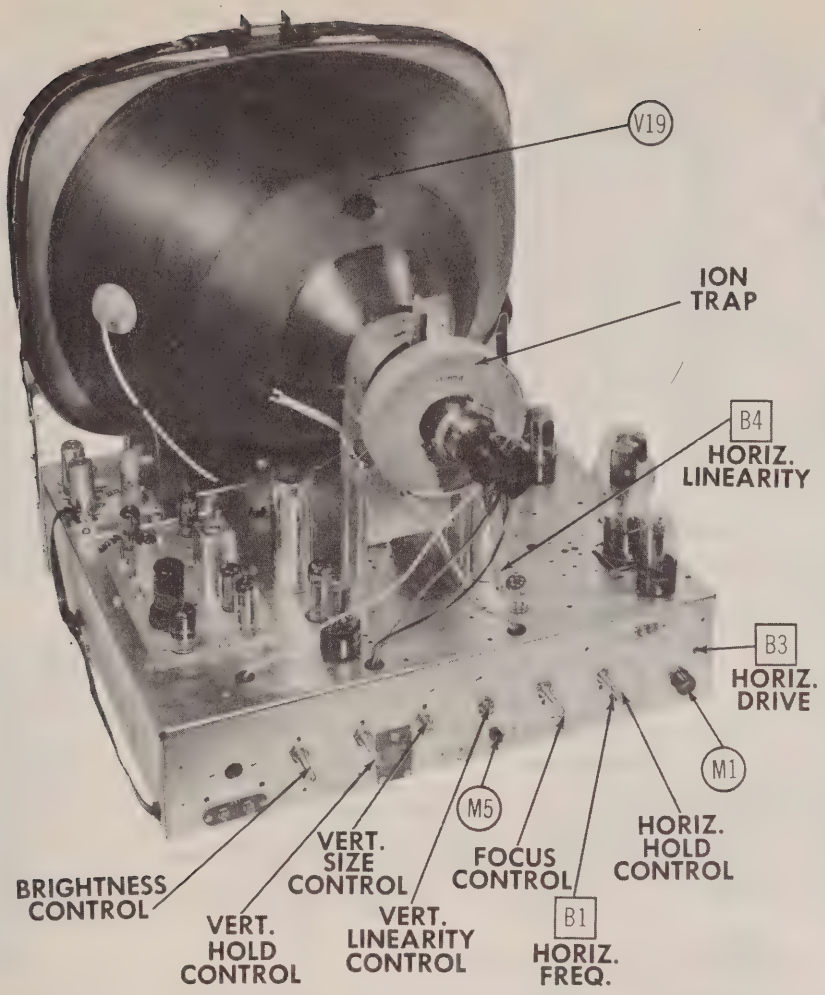
ALTERNATE TUNER SCHEMATIC



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CHASSIS-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) counterclockwise to the point just before the picture starts to compress in the center.

Adjust the width slug (B3) for a picture slightly wider than enough to fill the picture mask.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AMC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6CB6	6CB6	7CH	
B	RF Amplifier	6AQ5	6AQ5	7BD	
C	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	6J6	6J6	7EF	
V3	1st. Video IF Amp	6CB6	6CB6	7CH	
V4	2nd. Video IF Amp	6CB6	6CB6	7CH	
V5	3rd. Video IF Amp	6CB6	6CB6	7CH	
V6	Video Output	6AC7	6AC7	8N	
V7	Sound IF Amp.	6AU6	6AU6	7BK	
V8	Ratio Detector - AF Amp.	6T8	6T8	9E	
V9	Audio Output	6AQ5	6AQ5	7BZ	
V10	Sync Clipper - Sync Phase Inv.	12AU7	12AU7	9A	
V11	Vert. Oscillator - Vert. Discharge	6SN7GT	6SN7GT	8BD	
V12	Vert. Output	6B4	6B4	8AC	
V13	Horiz. Phase Det.	6AL5	6AL5	6BT	
V14	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V16	Damper	6AX4GT	6AX4GT	4CQ	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: AMC PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V19A	20DP4A	20DP4A	12D	① Circuit changes necessary
		20DP4 ①	12D	② 3/8" shorter
		20CP4 ① ②	12D	
		20CP4A ① ②	12D	
		20EP4A ①	12C	
		20HP4A ①	12C	
B	24AP4, A	24AP4, A	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AMC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲80	450		APH-87		UPT62345		FP245.3	TVL-2777	Note 1
B	▲20	450				BRH501		TC3501	TVA-1310	
C	▲100	50								
C2A	▲40	450		APH3-159				FP375	TVL-3764	
B	▲40	450		PRS200/30-30				TC68	TVA-1613	
C	▲100	200								
D	60	200								
C3	40	350		PRS450/40		BR4035		TC78	TVA-1611	
C4	4	50		PRS150/4		BR550		TC30	TVA-1303	Note 2
C5	4	50		PRS150/4		BR550		TC30	TVA-1303	
C6	.5-3				829-3			CT65A		
C7	.5-3				829-3			CT65A		
C8	120			5U120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C9	1000			5U1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C10	100			5U100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C11	.5-3				829-3			CT65A		
C12	20			5U20NP0	TC2-20		NP0K-200	ZT-542		
C13	10			5U10N750	TC2-10		N750K-100	NT-541	5TCU-Q1	
C14	.5-3				829-3		"	CT65A		
C15A	1000			BPD-5X001	DD-5-102	TM5DD1	5U3-001	DCD-521	5HK-D1	
B	1000									
C16	72	500		1469-000075				MCB230		
C17	10			5U10NP0	TC2-10		NP0K-100	ZT-541	5TCC-Q1	
C18	120	500		1469-00015		5R5T15		MCB256		
C19	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C20	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C21	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	Note 2
C22	.2	400		684-2		PTE4P22		PT4025	4TM-P22	
C23	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C24	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C25	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	Note 2
C26	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C27	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C28	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	Note 2
C29	.2	600		684-2						
C30	10	50*		1469-00001	TC2-10	5R5Q1	NP0K-100	MCB215	MS-41	
C31	.05	400		P488-05	DF-503	PTE485		PT415	4TM-S5	
C32	220			5U220	D6-221	5R5T25	GP2K-221	UC-5322	5GA-T22	Note 2
C33	47			5147	D6-470	5R5Q6	GP1K-470	UC-5447	5GA-Q47	Note 3
C34	.2	400		684-2		PTE4P22		PT4025	4TM-P22	
C35	.02	1000		P1068-02		PTE1682		PT1612	MB-S2	
C36	.05	400		P488-05	DF-503	PTE485		PT415	4TM-S5	
C37	.05	400		P488-05	DF-503	PTE485		PT415	4TM-S5	Note 4
C38	2.2				TC2-2.2		NP0K-2R2			
C39	120			5U120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C40	47			5147	D6-470	5R5Q5	GP1K-470	UC-5447	5GA-Q47	Note 5
C41	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C42	5	500		1469-000005		5R5Y5		MCB205	MS-45	
C43	220	500		1468-00025	D6-221	5W5T25	GP2K-221	MC240	1TM-325	
C44	2000			5U2000	D6-202	TM5D2	GP2-333-202	UC-522	5HK-D2	
C45	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C46	5000			BPD-005	DD-502	TM5D5	5U1-005	DC-525	5HK-D5	
C47	470	500		1468-0005	D6-471	5W5T5	GP2K-471	MC 245	1TM-35	
C48	.002	600		P888-002	D6-202	PTE5D2	GP2-333-202	PT622	6TM-D2	
C49	.01	600		P888-01	D6-103	PTE5S1	GP2-333-103	PT621	6TM-S1	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: AMC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C50	.2	400		684-2		PTE4P22		PT4025	4TM-P22	
C51	.002	600		P888-002	D6-202	PTE5D2	GP2-333-202	PT622	6TM-D2	
C52A	.002			P888-002		PTE5D2	GP2-333-502	PT622		
B	.005			P888-005	◆PC-100	PTE5D5	GP2-333-502	PT625	◆ 101C1	
C	.005			P888-005		PTE5D5	GP2-333-502	PT625		
C53	.0047	600		P888-0047	D6-472	PTE5D47	GP2-333-472	PT6247	6TM-D47	
C54	.05	600		P888-05	DF-503	PTE5S5		PT615	6TM-S5	
C55	.1	600		P888-1	DF-104	PTE5P1		PT601	6TM-P1	
C56	.2	600		684-2						Note 2
C57	1000			5U1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C58	1000			5U1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C59	.01	600		P888-01	D6-103	PTE5S1	GP2-333-103	PT621	6TM-S1	
C60	.005	600		P888-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C61	.05	600		P888-05	DF-503	PTE5S5		PT615	6TM-S5	
C62	3900	500		1464-004		IDH5D4		MCB463		
C63	330	500		1469-00035						
C64	.2	600		684-2						
C65	390	500		1469-0004		5R5T4		MCB243	MS-34	Note 6
C66	390	500		1469-0004		5R5T4		MCB243	MS-34	
C67	.1	600		P888-1	DF-104	PTE5P1		PT601	6TM-P1	
C68	.05	1000		P1068-05				PT1615	MB-S5	
C69	.03	1000		P1068-03		PTE1683		PT1613	MB-S3	

Note 1. Some models use two 40MFD in this application.
Note 2. Not used in all models.
Note 3. Some models use 120MMF in this application.
Note 4. Some models use 40MFD ⓖ 30V. in this application.
Note 5. Some models use 75MMF in this application.
Note 6. Some models use 470MMF in this application.
◆ Items C52A, C52B, C53C, R52A, R52B, R53C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AMC PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	P24-190A	QJ-3258*			UP13R	Contrast -See Note
B	500KΩ	2					UR55A	Volume-Rear
C	Switch						US-26	Attach to R1B
R2A	50KΩ	½	P25-18	Q11-123	AG-44-8	AB-31	U-35	Brightness
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R2A
R3A	50KΩ	½	P25-18	Q11-123	AG-44-8	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R3A
R4A	2Meg	½	P25-15	Q11-139	AG-83-8	AB-75	SU-56	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	2Meg	½	P25-20	Q11-139	AG-83-8	AB-75	U-56	Vert. Hold
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R5A
R6A	2500Ω	½	P25-13	Q11-113	AG-15-8	AB-7	U-8	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7	2250Ω	4	P25-19		RTV-319		TVF143	Focus-Wire Wound

NOTE: Connect 1800Ω resistor between center terminal and maximum clockwise terminal (Control viewed from shaft end, terminals down).
* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B17-110 & P1-234 (Panel) B13-133 & R2-306 (Rear) & Switch 76-1.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AMC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
					ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R8	3900Ω	½		BTS-3900	Antenna Coil Shunt
R9	47KΩ	20% ½			RF Amp. Grid
R10	2200Ω	20% ½		BTS-2200	RF Amp. Decoupling
R11	10KΩ	½			RF Coil Shunt
R12	4700Ω	½		BTS-4700	Mixer Grid
R13	220KΩ	20% ½			Mixer Grid
R14	10KΩ	½			Oscillator Grid
R15	4700Ω	½		BTS-4700	Oscillator Plate
R16	4700Ω	½		BTS-4700	1st. Video IF Grid
R17	56Ω	½			1st Video IF Cathode
R18	680Ω	½		BTS-680	AGC Network
R19	6800Ω	½			2nd. Video IF Coil Shunt
R20	56Ω	½			2nd. Video IF Cathode
R21	1Meg	20% ½		BTS-1Meg	AGC Network
R22	100Ω	½		BTS-100	Decoupling
R23	100Ω	½		BTS-100	Decoupling
R24	6800Ω	½			3rd. Video IF Coil Shunt
R25	82Ω	½		BTS-82	3rd. Video IF Cathode
R26	5600Ω	½		BTS-5600	Video Detector Diode Load
R27	470KΩ	½		BTS-470K	Video Output Grid
R28	82Ω	½		BTS-82	Video Output Cathode
R29	1000Ω	½		BTS-1000	Contrast Network
R30	6800Ω	2		BTS-6800	Video Output Plate
R31	10KΩ	½		BTS-10K	Isolation
R32	100KΩ	½		BTS-100K	Picture Tube Cathode
R33	10KΩ	½		BTS-10K	Acc. Anode Load
R34	100KΩ	½		BTS-100K	Sound IF Grid
R35	22KΩ	2		BTS-22K	Sound IF Decoupling
R36	150Ω	½		BTS-150	Balancing
R37	47KΩ	20% ½		BTS-47K	De-emphasis
R38	12KΩ	½		BTS-12K	Ratio Det. Diode Load
R39	4.7Meg	½		BTS-4.7Meg	AF Amp. Grid
R40	270KΩ	½		BTS-270K	AF Amp. Plate
R41	330KΩ	5% ½		BTS-330K	Voltage Divider
R42	180KΩ	5% ½		BTS-180K	Voltage Divider
R43	100KΩ	½		BTS-100K	AF Output Grid
R44	800Ω	5		1 3/4A-800	AF Output Decoupling - Wire Wound
R45	1.2Meg	½		BTS-1.2Meg	Sync Clipper Grid
R46	22KΩ	½		BTS-22K	Sync Clipper Cathode
R47	680KΩ	½		BTS-680 K	Sync Clipper Plate
R48	22KΩ	½		BTS-22K	Sync. Ph. Inv. Grid
R49	2200Ω	½		BTS-2200	Sync Ph. Inv. Cathode
R50	3900Ω	½		BTS-3900	Sync Ph. Inv. Plate
R51	2200Ω	½		BTS-2200	Sync Ph. Inv. Plate

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: AMC PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R52A	22KΩ	1	◆	BTS-22K	Integrator Network
B	8200Ω	1		BTS-8200	Integrator Network
C	8200Ω	1		BTS-8200	Integrator Network
R53	1.5Meg	½		BTS-1.5Meg	Vert. Osc. Grid
R54	10KΩ	½		BTS-10K	Vert. Osc. Trans. Shunt
R55	22KΩ	½		BTS-22K	Vert. Osc. Plate
R56	1.5 Meg	½		BTS-1.5Meg	Vert. Discharge Plate - See Note 1
R57	56KΩ	½		BTS-56K	Vert. Discharge Plate Decoupling
R58	470KΩ	½		BTS-470K	Voltage Divider
R59	8200Ω	½		BTS-8200	Vert. Peaking
R60	2.2Meg	½		BTS-2.2Meg	Vert. Output Grid
R61	680Ω	½		BTS-680	Vert. Output Cathode
R62	100KΩ	½		BTS-100K	Horiz. Ph. Det. Diode Load
R63	100KΩ	½		BTS-100K	Horiz. Ph. Det. Diode Load
R64	4.7Meg	½		BTS-4.7Meg	Horiz. Ph. Det. Diode Load
R65	470KΩ	½		BTS-470K	Horiz. AFC Filter
R66	5600Ω	½		BTS-5600	Horiz. M. V. Plate
R67	1500Ω	½		BTS-1500	Horiz. M. V. Cathode
R68	100KΩ	½		BTS-100K	Horiz. M. V. Grid
R69	270KΩ	½		BTS-270K	Horiz. M. V. Plate
R70	56KΩ	½		BTS-56K	Horiz. M. V. Plate Dec.
R71	4700Ω	½		BTS-4700	Horiz. Peaking
R72	56Ω	½			Parasitic Suppressor
R73	1Meg	½		BTS-1Meg	Horiz. Output Grid - See Note 2
R74	2.5KΩ	10		1 3/4A-25K	Horiz. Output Screen - Wire Wound
R75	47Ω	1			Horiz. Output Cathode - See Note 3
R76	3.3Ω	1			H. V. Rect. Filament
R77	470KΩ	2			H. V. Filter
R78	15KΩ	2		BTS-15K	Horiz. Feedback
R79	3300Ω	2		BTS-3300	Voltage Divider
R80	330Ω	20% 2		BTS-330	Focus Coil Shunt
R81	27Ω	1			Horiz. Output Cathode - See Note 4

Note 1. Some Models may use a 2.7Meg Resistor in this application
◆ Items C52A, C52B, C53C, R52A, R52B and R52C are combined in one unit
Note 2. Some Models may use a 470KΩ Resistor in this application
Note 3. Some Models may use a 120Ω Resistor in this application
Note 4. Not used in all Models

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: AMC PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.
T1	117V AC @ 1.94A	800V CT @ 220ADC	5VAC @ 3A	6.3V AC @ 7.8A CT			P-3067		
				6.3V AC @ 1.5A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: AMC PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	NOTES
T2	170Ω	1000Ω		A-8111 ②	A-3000 ②	TSO-2 ②	A-97X	Vert. Osc. Trans
T3	325Ω	2.5Ω Tap @ 5Ω, 5.5Ω						Horiz. Output Trans.
	Tap @ 20Ω	SEC. 2 1.7Ω						
		SEC. 3 0Ω						
T4	1230Ω			A-8123	A-3037	TSO-8	A-102X	Vert. Output Trans.
	Tap @ 10Ω							
T5	8.5Ω			DY-8	MDF-70	TY-2	Y-12	Horiz. Deflection coils
	45Ω							Vert. Deflection Coils.
T6	400Ω			FC-11			B-470-R	Focus Coil.

② Drill one new mtg. hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: AMC PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	NOTES
T7	7.6KΩ	3.2Ω	365Ω	.7Ω		A-3949	A3030	RO-301	S-9X	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	AMC PART No.	MERIT PART No.	
L1	Ant. Coil	0Ω				
L2	Fil. Choke	0Ω				
L3	RF, Mixer Grid & Osc.	0Ω				
L4	Fil. Choke	0Ω				
L5	Conv. Plate & IF Trap	1.6Ω	0Ω			
L6	1st. Video IF	1Ω				
L7	Fil. Choke	0Ω				
L8	2nd. Video IF	.2Ω	.2Ω			
L9	3rd. Video IF	.2Ω	.2Ω			
L10	4th. Video IF	.2Ω	.2Ω			
L11	Peaking Coil	2.4Ω			TV-180	White, 36 Microhenries
L12	Peaking Coil	9.5Ω				Red, 375 Microhenries
L13	Peaking Coil	6.8Ω			*TV-185	Blue, 225 Microhenries, Wound on 10K resistor
L14	4.5MC Trap	1.8Ω			TV-151	
L15	Peaking Coil	11Ω				Green, 510 Microhenries
L16	Sound IF	1.8Ω			TV-151	
L17	Ratio Det.	4.2Ω	.2Ω		TV-110	Tertiary Winding .7Ω
L18	Horiz. Osc.	47Ω			TV-163	
L19	Width Coil	.45Ω				
L20	Horiz. Lin.	22Ω			MWC-1	

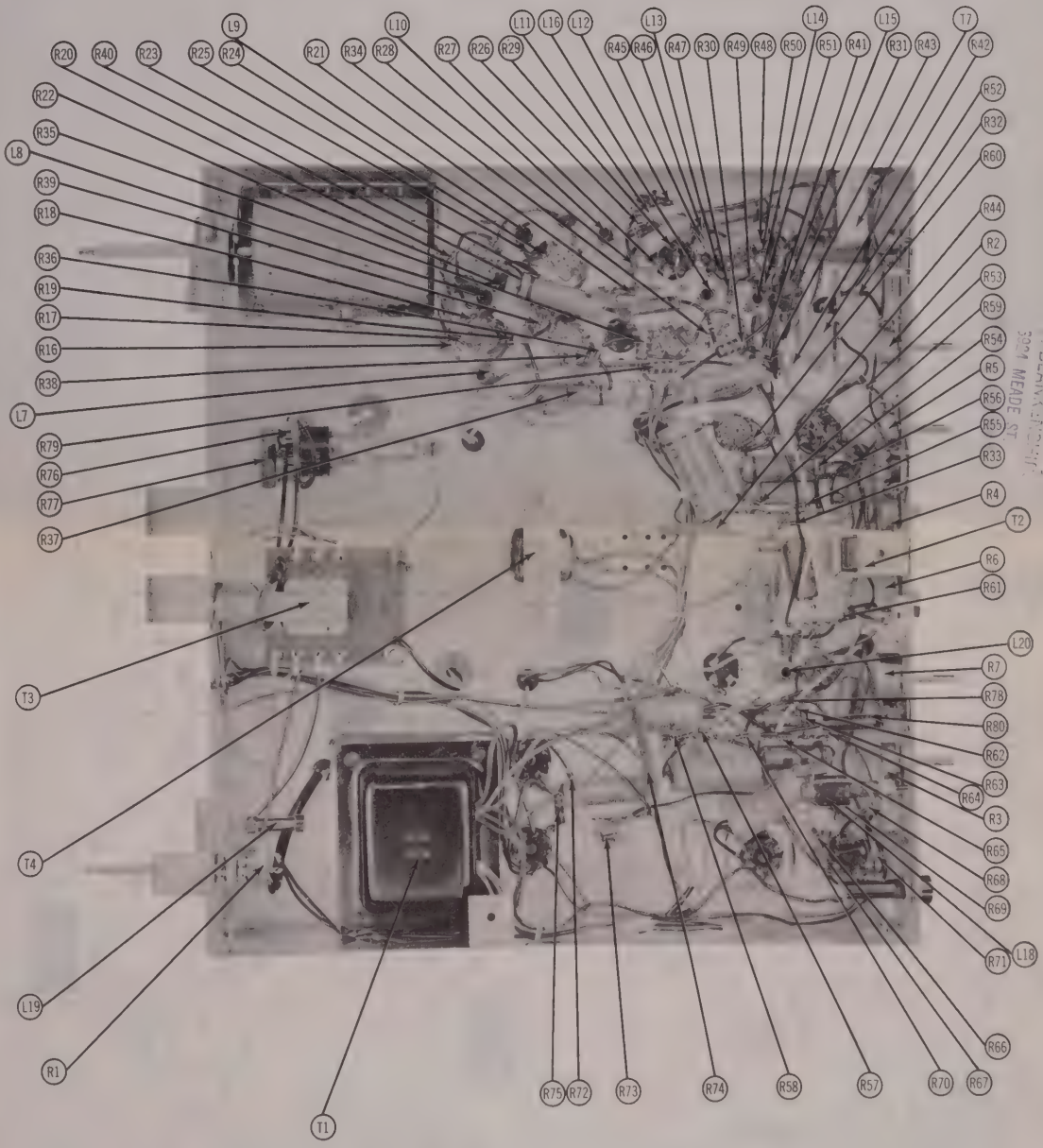
*Parallel with 10K resistor

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AMC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	5A. 250V.			312005	341001	MTH5	HKP
M2	3AG Pigtail	1/4A. 250V.			318.250		GJV 1/4	

MISCELLANEOUS

ITEM No.	PART NAME	AMC PART No.	NOTES
M3	RF tuner		
M4	Crystal		IN64
M5	Switch		TV-Phono



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

*TRADE MARK

ARVIN MODELS 7210CB, CM, 7212CFP, MEA, 7214CM, 7216CB, 7218CB, CM, 7219CM (Ch. TE-341-1)

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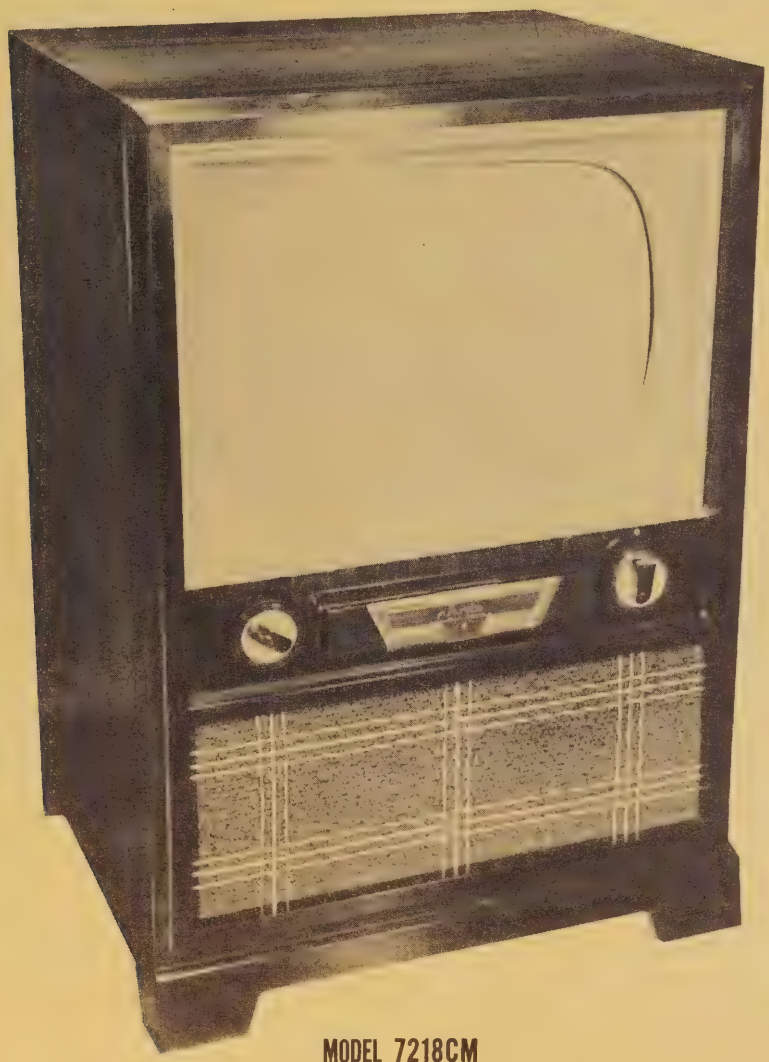

MODEL 7218CM

ARVIN MODELS 7210CB, CM, 7212CFP, MEA, 7214CM, 7216CB, 7218CB, CM, 7219CM (Ch. TE-341-1)

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

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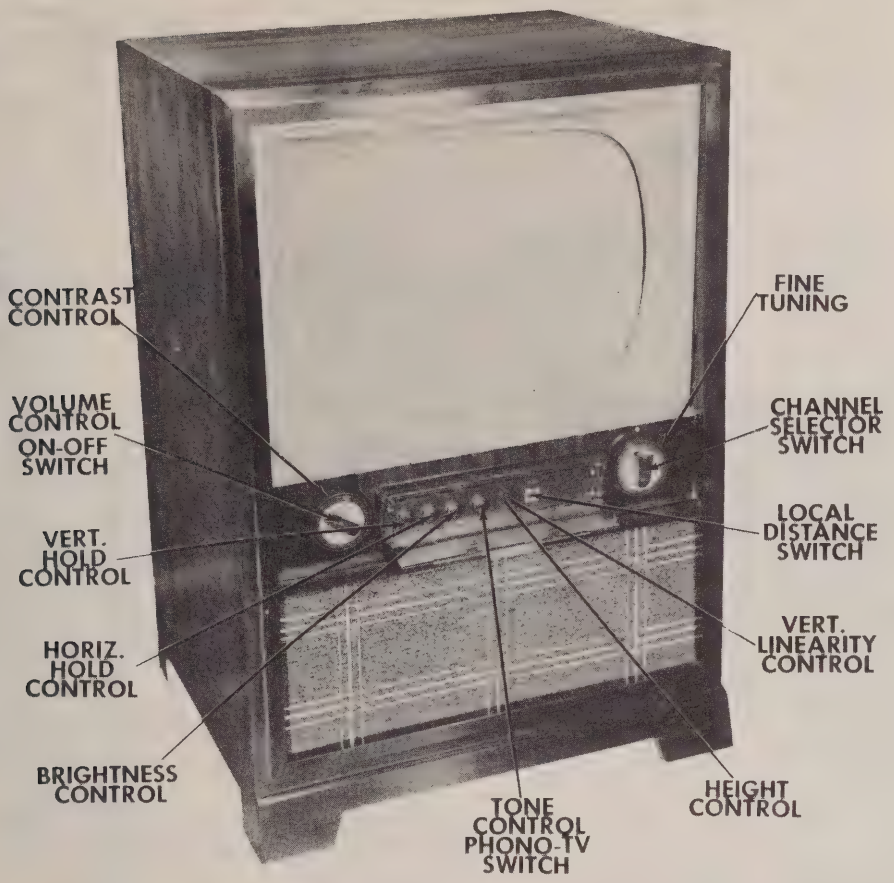
DATE 12-52 SET 188 FOLDER 4

ARVIN MODELS 7210CB, CM, 7212CFP, MEA, 7214CM, 7216CB, 7218CB, CM, 7219CM (Ch. TE-341-1)

L. F.
DENVER, COLO.



ARVIN MODEL 7218CM

TRADE NAME	Arvin Models 7210CB, 7210CM, 7212CFP, 7212MEA, 7214CM, 7216CB, 7218CB, 7218CM, 7219CM(Ch. TE-341-1)
MANUFACTURER	Arvin Industries, Columbus, Indiana
TYPE SET	Television Receiver
TUBES	Twenty Eight
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 2.4 Amp.@ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13 (VHF) 14 thru 83 (UHF) continuous tuning

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ARVIN MODELS 7210CB, CM, 7212CFP, MEA, 7214CM, 7216CB, 7218CB, CM, 7219CM (Ch. TE-341-1)

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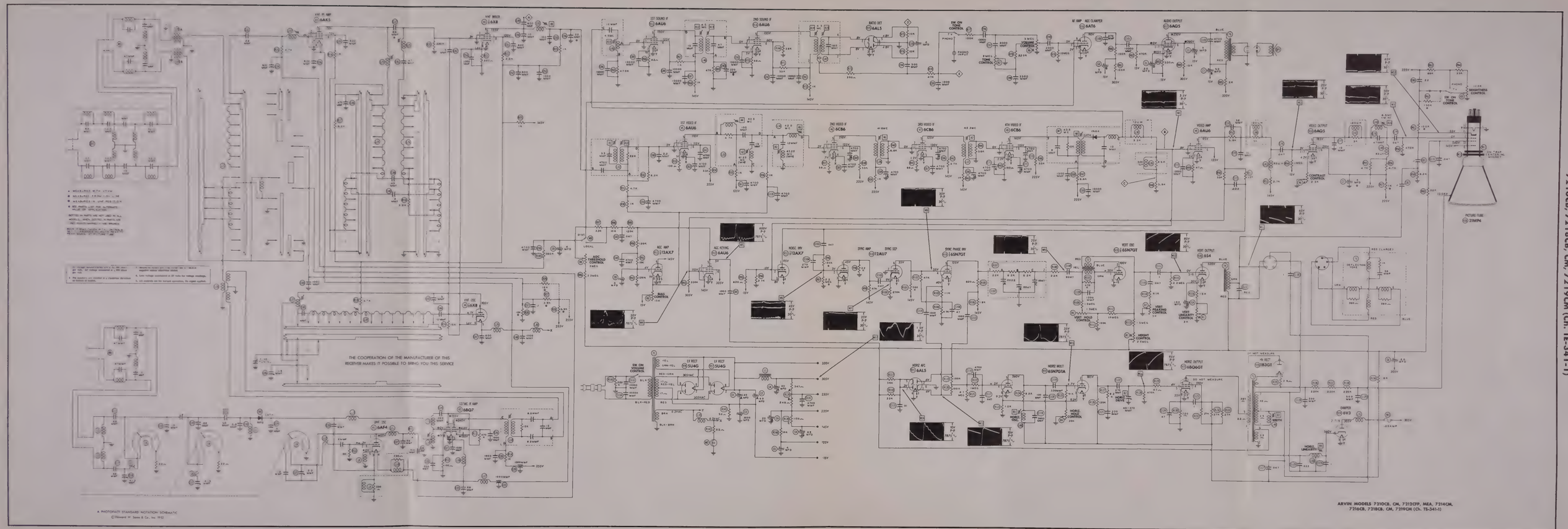
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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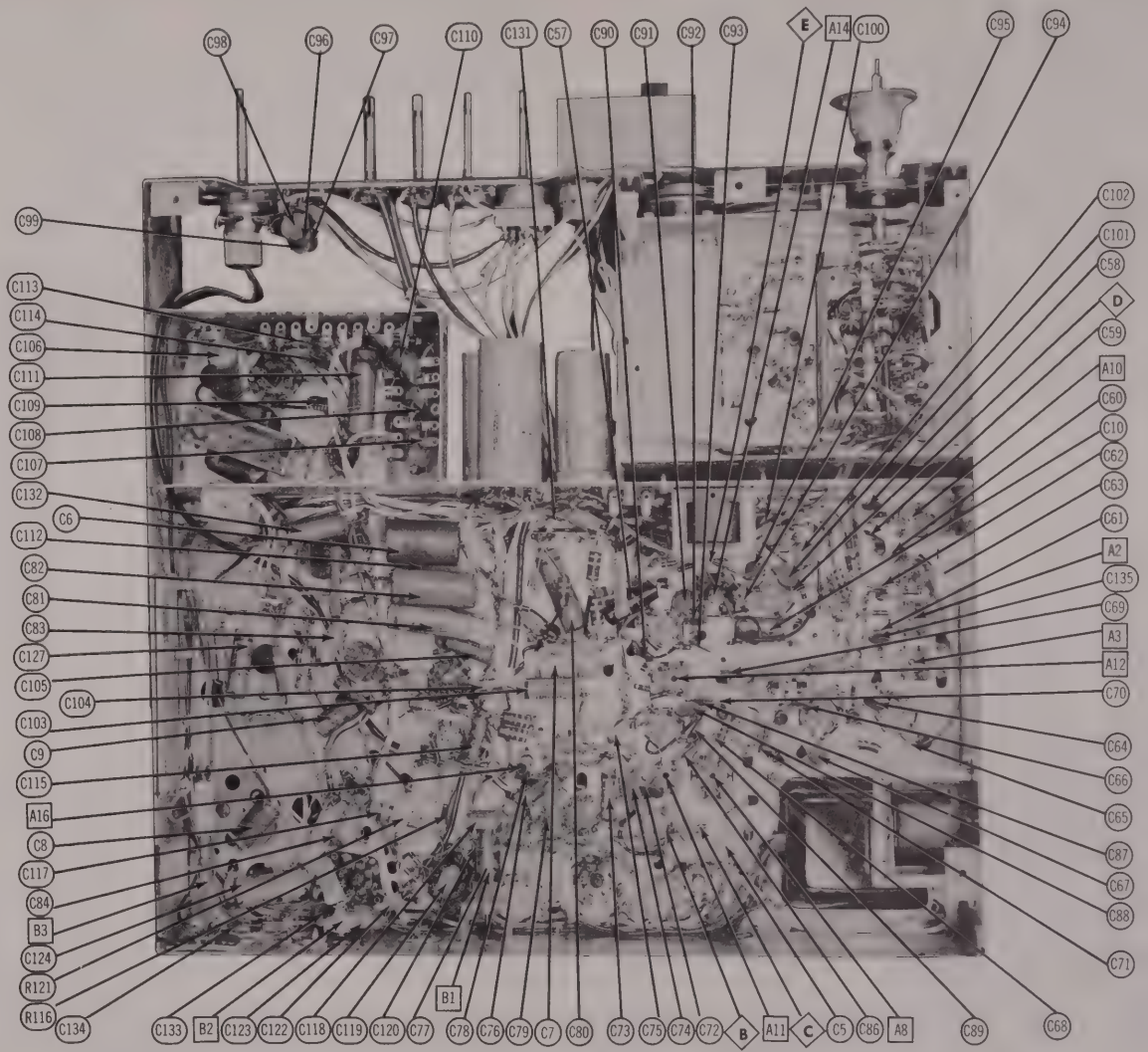
ARVIN MODELS 7210CB, CM, 7212CFP, MEA, 7214CM, 7216CB, 7218CB, CM, 7219CM (Ch. TE-341-1)

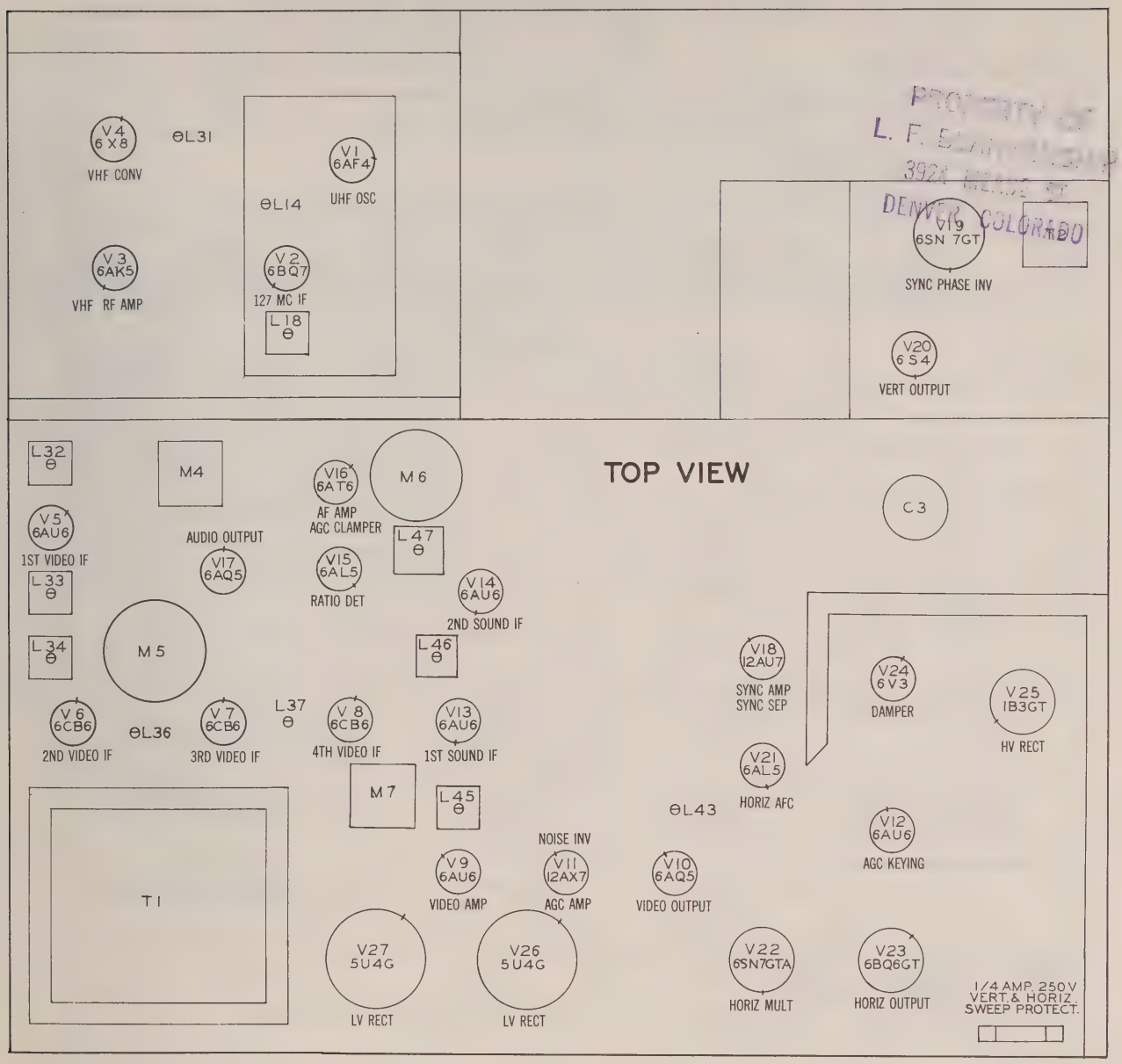
ARVIN MODELS 7210CB, CM, 7212CFP, MEA, 7214CM, 7216CB, 7218CB, CM, 7219CM (Ch. TE-341-1)

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



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TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V26, V27

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V4, V5, V6, V7, V8
No pic, no sound, has snow-V3, V4, V5
No pic, has sound, has raster-V9, V10, V28
Has pic, no sound-V13, V14, V15, V16, V17
Overloaded picture-V11, V12, V16
Loss of picture and sound(UHF Only)-V1, V2

SYNC FAILURE
No vert. sync-V19
No horiz. sync-V19, V21, V22
No vert. or horiz. sync-V18, V19

SWEEP FAILURE
No raster, has sound-V22, V23, V24, V25, V28 Fuse (M1)
No vertical deflection-V20
Poor vert. linearity or foldover-V19, V20
Poor horiz. linearity or foldover-V22, V23, V24
Narrow picture-V22, V23, V24, V25, V26, V27
Vert off freq. -V19
Horiz. off freq-V19, V21, V22

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal multivibrator tube (V22).

AGC ADJUSTMENTS

Short pin 1 (grid) of V7 to chassis.
Adjust the bias control (R9) to obtain zero volts as measured with a VTVM at pin 8 (cathode) of V11B. Remove the short from pin 1 of V7.
Set the Local-Long Distance switch to Local and, with the receiver operating normally, tune in a strong TV signal. Adjust the AGC threshold control to the point where further adjustment will cause overloading of the video signal.

VIDEO IF ALIGNMENT

Make AGC adjustments before attempting Video IF Alignment.
Remove keyed AGC amplifier tube (V12) from its socket.
Set Local-Long Distance switch in Local position.
Connect negative lead of variable bias supply (fig. 1) to pin 5 of V12 socket. Connect positive lead to chassis.
Adjust bias supply to obtain zero volts as measured with VTVM at pin 9 of V11B. VTVM should be connected through isolating network shown in fig. 2.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to point (A) Low side to chassis.	Not used.	39.75MC (Unmod)	Any non-interfering channel	Use VTVM. DC probe thru isolating network (fig 2) to point (B) Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	"	41.25MC	"	"	A2	"
3.	"	"	"	47.25MC	"	"	A3	"
4.	"	"	"	43.5Mc	"	"	A4	Adjust for maximum deflection.
5.	"	"	"	42.0MC	"	"	A5	Adjust for maximum deflection. Check steps 3 and 4.
6.	"	"	"	41.8MC	"	"	A6	Adjust for maximum deflection.
7.	"	"	"	45.3MC	"	"	A7	"
8.	"	"	"	43.5MC	"	"	A8	"
9.	10KΩ	High side thru 10KΩ to point (A) Low side to chassis.	"	41.8MC	"	"	A9	"
10.	"	"	"	45.25MC	"	"	A10	"
11.	.001MFD	High side to pin 1 (grid) of 6AU6 (V5) Low side to chassis.	44MC (10MC Swp)	41.45MC 42.24MC 45.75MC 47.25MC	"	Vert amp of scope thru detector (fig 3) with the 180Ω resistor from Lug A of L36 to the junction of R38 and R39.		Set bias supply to obtain -6 Volts on VTVM at pin 8 of V11B. Check for response similar to fig. 4. If necessary retouch A4 and A5 for desired response.
12.	Direct	High side to an ungrounded tube shield floating over converter tube V4. Low side to chassis.	"	39.75MC 41.9MC 45.0MC 45.75MC	"	Vert. amp of scope thru detector with 180Ω from Lug B of L33 to junction of R35 and C61.		Check for response similar to fig. 5. If necessary retouch A9 and A10 for desired response.
13.	"	"	"	41.25MC 42.25MC 45.0MC 45.75MC	"	Vert amp thru 27KΩ to point (C) Low side to chassis.		Check for response similar to fig. 6. If necessary retouch A6, A7 and A8 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
14.	.001MFD	High side to point (B) Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel.	DC probe to point (D) Common to chassis.	A11, A12, A13, A14	Adjust for maximum deflection
15.	"	"	"		DC probe to point (E) Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

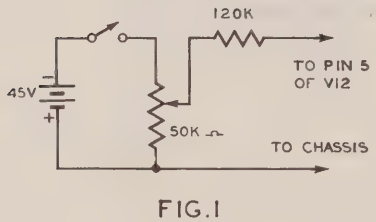


FIG.1

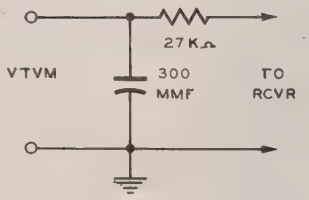


FIG.2

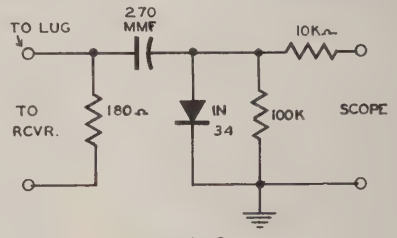


FIG.3

FIG.4

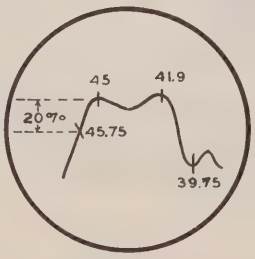


FIG.5

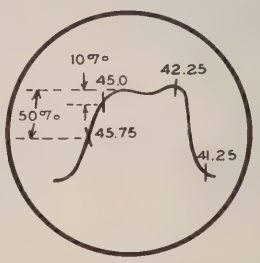


FIG.6

ALIGNMENT INSTRUCTIONS (CONT.)

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	.001MFD	High side to point (B). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any non-interfering channel	Vert. Amp. to point (D). Low side to chassis.	A11, A12 A13, A14	Disconnect stabilizer capacitor C10. Adjust for curve of maximum amplitude and symmetry as in fig. 7.
15.	"	"	"	"	"	Vert. Amp. to point (E). Low side to chassis.	A15	Reconnect capacitor C10. Adjust so that 4.5 MC occurs at center of crossover lines as in fig. 8. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
16.	100MMF	High side to pin 1 (grid) of 6AQ5 (V10). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel.	DC probe to point (D) Common to chassis.	A16	Connect jumper from junction of C79 and R58 to pin 1 of V14. Adjust for MINIMUM deflection.

RF ALIGNMENT

The tuner portions of this receiver have been properly aligned at the factory and are very stable. Alignment of these portions should not be required in the field.

FIG. 7

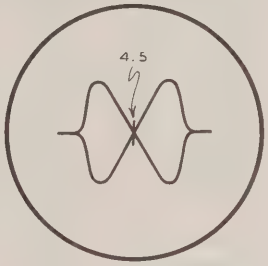
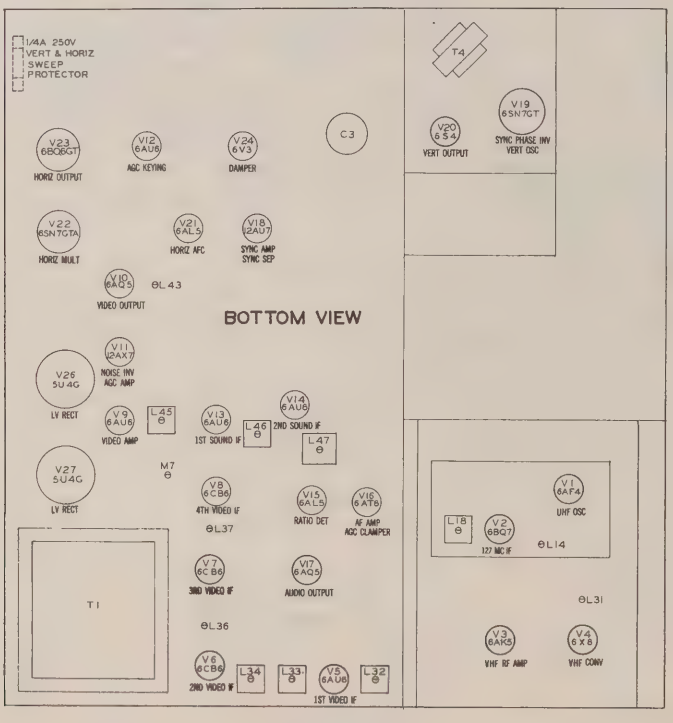


FIG. 8

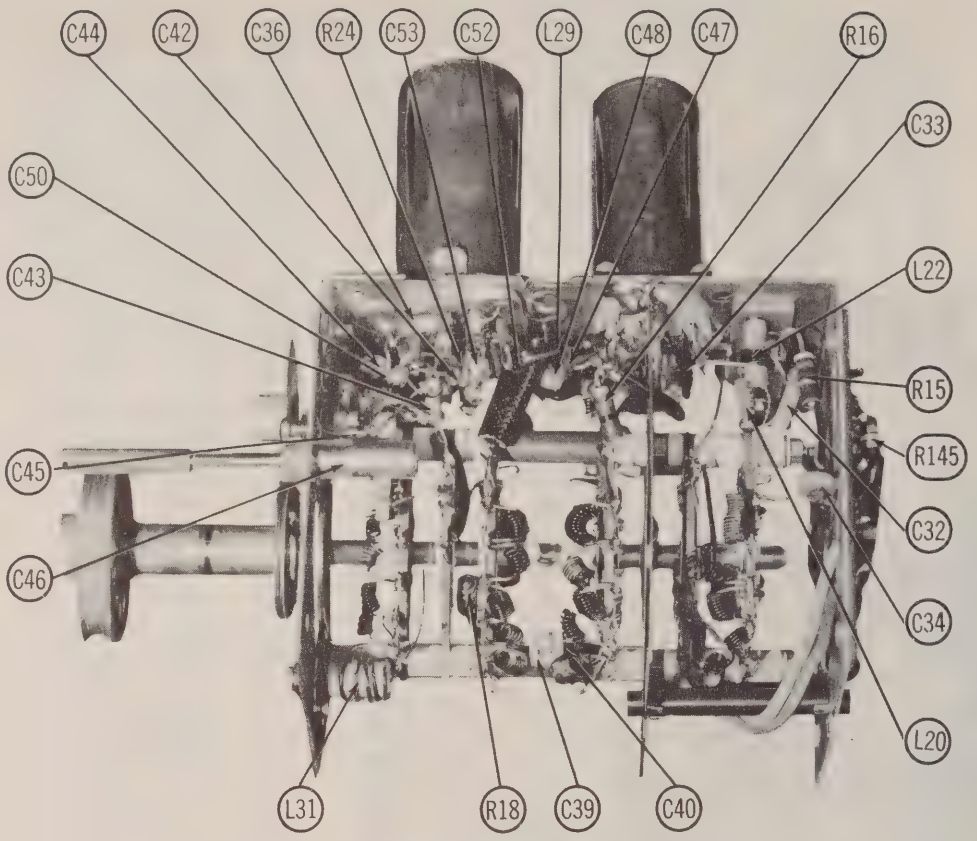
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AF4	♦†5KΩ	10KΩ	.4Ω	.1Ω	.1Ω	10KΩ	♦†5KΩ		
V 2	6BQ7	†1.4KΩ	INF	INF	0Ω	.4Ω	INF	0Ω	100Ω	0Ω
V 3	6AK5	850KΩ	0Ω	.2Ω	0Ω	†11KΩ	†12KΩ	0Ω		
V 4	6X8	0Ω	15 Ω	†7.5KΩ	0Ω	. 2Ω	220Ω	220KΩ	†5KΩ	†3.8KΩ
V 5	6AU6	14KΩ	0Ω	0Ω	.1Ω	†11KΩ	†33KΩ	100Ω		
V 6	6CB6	9.5KΩ	56Ω	0Ω	.1Ω	†1.6KΩ	†33KΩ	0Ω		
V 7	6CB6	.2Ω	68Ω	.1Ω	0Ω	†2.8KΩ	†6.5KΩ	0Ω		
V 8	6CB6	.2Ω	180Ω	.1Ω	0Ω	†7.4KΩ	†33KΩ	0Ω		
V 9	6AU6	3.9KΩ	0Ω	0Ω	.1Ω	†8.4KΩ	†10KΩ	47Ω		
V 10	6AQ5	1Meg	600Ω	.1Ω	0Ω	†3.9KΩ	†1.6KΩ	1 Meg		
V 11	12AX7	†30KΩ	660Ω	3.9KΩ	.1Ω	.1Ω	†1.8KΩ	120KΩ	8.5KΩ	0Ω
V 12	6AU6	†36KΩ	†1.8KΩ	0Ω	.1Ω	210KΩ	†45Ω	†1.8KΩ		
V 13	6AU6	470KΩ	0Ω	0Ω	.1Ω	†2.8KΩ	†3.8KΩ	82Ω		
V 14	6AU6	47KΩ	0Ω	0Ω	.1Ω	†2.8KΩ	†21KΩ	68Ω		
V 15	6AL5	INF	INF	0Ω	.1Ω	10KΩ	0Ω	10KΩ		
V 16	6AT6	10 Meg	0Ω	0Ω	.1Ω	310KΩ	310KΩ	†250KΩ		
V 17	6AQ5	470KΩ	380Ω	0Ω	.1Ω	†2.4KΩ	†15KΩ	470KΩ		
V 18	12AU7	15KΩ	2.2Meg	0Ω	.1Ω	.1Ω	51KΩ	0Ω	270KΩ	0Ω
V 19	6SN7GT	2.1 Meg	#2 Meg	0Ω	51KΩ	†4.4KΩ	5.8KΩ	.1Ω	0Ω	
V 20	6S4	INF	2.8KΩ	2.2Meg	.1Ω	0Ω	2.2Meg	INF	INF	#3.4KΩ
V 21	6SL5	4.8Meg	4.8Meg	.1Ω	0Ω	17KΩ	0Ω	17KΩ		
V 22	6SN7GTA	100KΩ	†120KΩ	1.2KΩ	5.7Meg	†8.2KΩ	1.2KΩ	0Ω	.1Ω	
V 23	6BQ6GT	INF	0Ω	INF	†9KΩ	470KΩ	INF	.1Ω	220Ω	Top Cap #28Ω
V 24	6V3	INF	†46Ω	INF	.1Ω	0Ω	INF	†46Ω	Pin 8 INF / Pin 9 †46Ω	Top Cap 160KΩ
V 25	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #413Ω
V 26	5U4G	50Ω	11KΩ	INF	■16Ω	INF	■16.8Ω	INF	11KΩ	
V 27	5U4G	INF	11KΩ	†45Ω	■16Ω	50Ω	■16.8Ω	INF	11KΩ	
V 28	21MP4	0Ω	470KΩ	Pin 6 †1.8KΩ	Pin 10 #24KΩ	Pin 11 110KΩ	Pin 12 .1Ω			

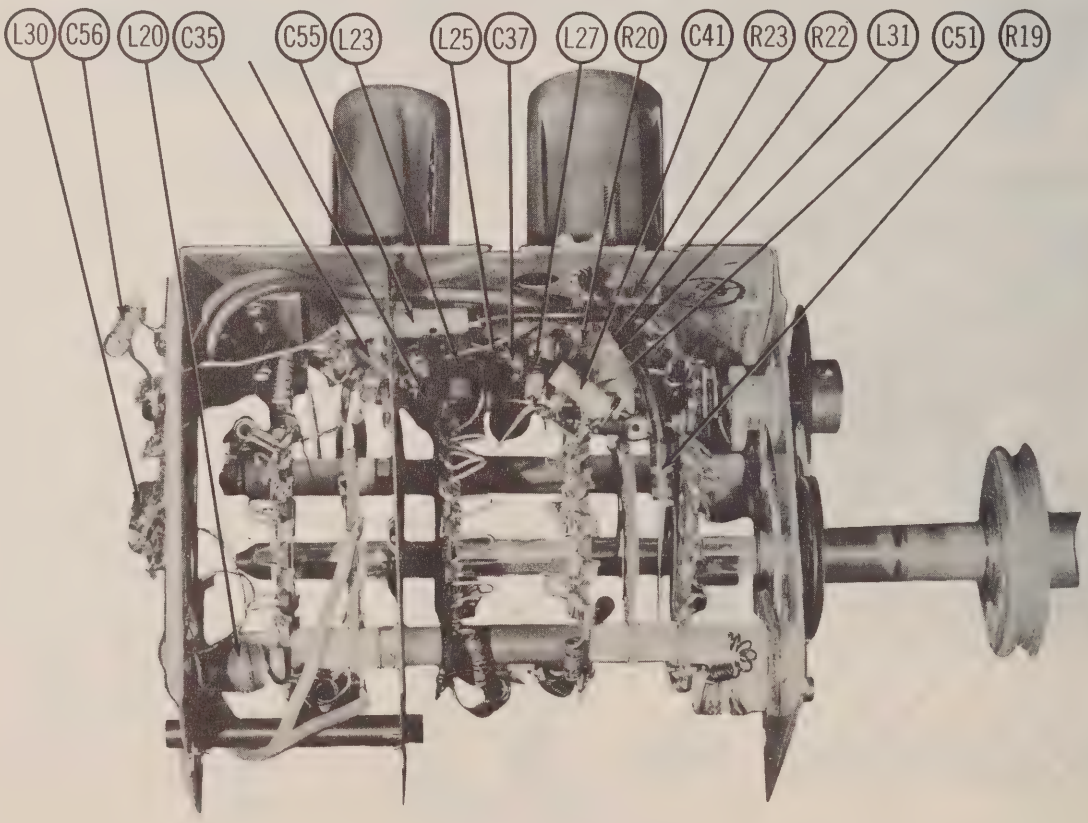
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
LOCAL DISTANCE SWITCH IN LOCAL POSITION
† MEASURED FROM PINS 2 OF V26 & V27
# MEASURED FROM TOP CAP OF V24
■ MEASURED FROM -15VDC LINE
♦ MEASURED IN UHF POSITION



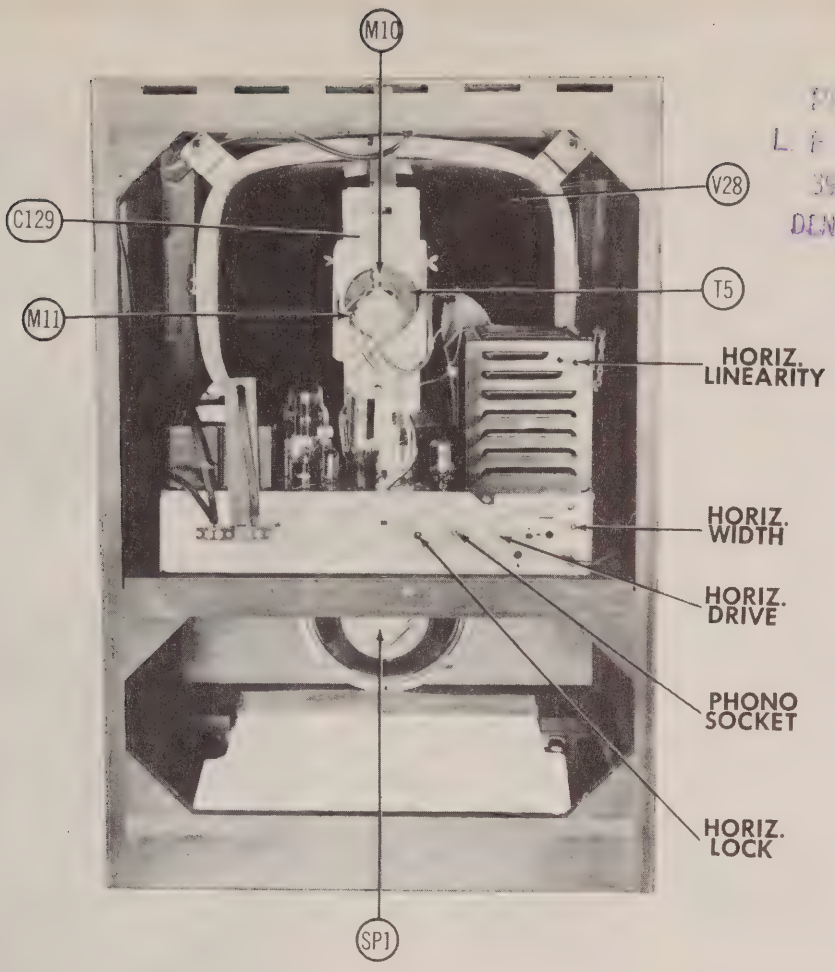
TUBE PLACEMENT CHART



VHF TUNER-RIGHT SIDE



VHF TUNER-LEFT SIDE



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the center of its mechanical range and adjust the horizontal lock slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) in a counter clockwise direction as far as possible without the presence of a vertical white line or compression of the center of the picture. If neither of these effects is noted set the trimmer to minimum capacity consistent with satisfactory compression of the trimmer plates.

Adjust the width slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

① Remove 6 push on type control knobs from front panel.
Note. Tuner Shaft Disassembly
Remove push on type channel knob (VHF). Remove C clamp.
Remove fine tuning knob & spring. UHF indicator does not come off.

② Remove 6 wood & 1 metal screw. Remove rear cover.

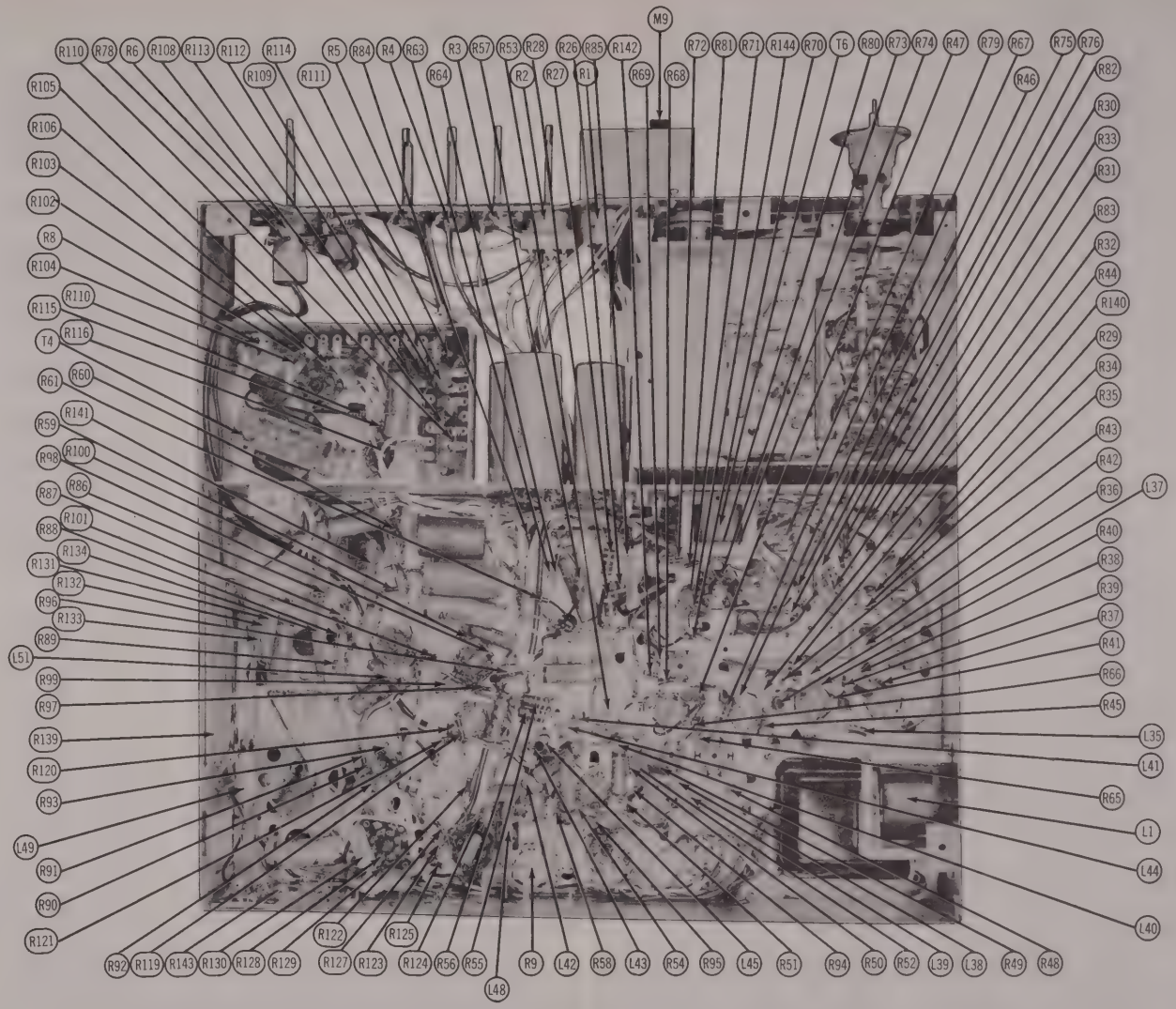
③ Disconnect built in antenna & speaker.

④ Remove screw & disconnect yoke plug. Disconnect HV lead, CRT socket.

⑤ Remove 1 metal bolt. (Located at bottom side of yoke bracket) holding chassis to yoke bracket. Remove 6 chassis bolts. Remove chassis.

⑥ Remove 4 speaker nuts. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	UHF Oscillator	6AF4	6AF4	7DK	
V2	127MC IF Amp.	6BQ7	6BQ7	9AJ	
V3	VHF RF Amplifier	6AK5	6AK5	7BD	
V4	VHF Converter	6X8	6X8	9AK	
V5	1st. Video IF Amp.	6AU6	6AU6	7BK	
V6	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V7	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V8	4th. Video IF Amp.	6CB6	6CB6	7CM	
V9	Video Amplifier	6AU6	6AU6	7BK	
V10	Video Output	6AQ5	6AQ5	7BZ	
V11	Noise Inverter-AGC Amplifier	12AX7	12AX7	9A	
V12	AGC Keying	6AU6	6AU6	7BK	
V13	1st. Sound IF Amp.	6AU6	6AU6	7BK	
V14	2nd. Sound IF Amp.	6AU6	6AU6	7BK	
V15	Ratio Detector	6AL5	6AL5	6BT	
V16	AF Amplifier-AGC Clamper	6AT6	6AT6	7BT	
V17	Audio Output	6AQ5	6AQ5	7BZ	
V18	Sync Amplifier-Sync Separator	12AU7	12AU7	9A	
V19	Sync Phase Inv.-Vert. Oscillator	6SN7GT	6SN7GT	8BD	
V20	Vert. Output	6S4	6S4	9AC	
V21	Horiz. AFC	6AL5	6AL5	6BT	
V22	Horiz. Mult.	6SN7GTA	6SN7GTA	8BD	
V23	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V24	Damper	6V3	6V3	9BD	
V25	HV Rectifier	1B3GT	1B3GT	3C	
V26	LV Rectifier	5U4G	5U4G	5T	
V27	LV Rectifier	5U4G	5U4G	5T	

3924 MEADE ST.
DENVER, COLORADO

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V28	21MP4			12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■40	450	E22422-16	AFH4-96		UPT44145-V2		FP431.4	TVL-4736 TVA-1702	
B	▲50	450								
C	▲5	450								
D	20	25								
C2A	■40	450	E22422-18	AFH1-52		UPT4045		FP146	TVL-1725	
B	▲5	450		PRS450/4		BR445		TC70	TVA-1702	
C3	3000	15	E22422-12	AFH1-04		UP3M-15		WP042	TVL-1170	
C4A	▲60	350	E22422-17	AFH3-45		UPT62245		FP391.1	TVL-4630	
B	■25	350		PRS50/100		BRH501		TC3501		
C	▲25	350								
D	100	50								
C5	4	300	A40002	PRS350/4		BR435		TC60	TVA-1601	
C6	20	450	A25452	PRS450/20		BR2045A		TC75	TVA-1709	
C7	4	300	A40002	PRS350/4		BR435		TC60	TVA-1601	Note 1
C8	4	150	A25453	PRS150/4		BR415		TC40	TVA-1402	
C9	4	150	A25453	PRS150/4		BR415		TC40	TVA-1402	
C10	4	150	A25453	PRS150/4		BR415		TC40	TVA-1402	
C11	.68				TCZ-.68		NP0K-R68			
C12	.68				TCZ-.68		NP0K-R68			
C13	1				TCZ-1		NP0K-010		5TCCB-V1	
C14	.4-3									
C15	.82									
C16	1.8									
C17	.4-3									
C18	2.2				TCZ-2.2		NP0K-2R2		5TCCB-V22	
C19	1				TCZ-1		NP0K-010		5TCCB-V1	
C20	1.1									
C21	.5-3				829-3			CT565A		
C22	68			SI68	D6-680		GP1K-680	UC-5468	5GA-Q68	
C23	68			SI68	D6-680		GP1K-680	UC-5468	5GA-Q68	
C24	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C25	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C26	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C27	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C28	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C29	1000									
C30	1000									
C31	1000									
C32	22			SI22	D6-220		GP1K-220	UC-5422	5GA-Q22	
C33	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C34	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C35	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C36	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C37	.68				TCZ-.68		NP0K-R68			Note 2
C38	470			SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C39	.43									
C40	1.2						NP0K-1R2			
C41	47			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C42	1.5			SI1.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515	5TCCB-V15	
C43	1.5						N330K-1R5			
C44	10			SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C45	1				TCZ-1		NP0K-010		5TCCB-V1	
C46	1-8									
C47	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C48	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C49	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C50	10			SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C51	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-S1	
C52	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-S1	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C53	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-S1	
C54	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-S1	
C55	.00									
C56	22						N220K-220			Note 3
C57	.1	400	C20290-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C58	4700		D40053-473	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C59	4700		D40053-473	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C60	2.2		D40355-1		TCZ-2.2				5TCCB-V22	
C61	4700		D40053-473	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C62	4700		D40053-473	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C63	4700		D40053-473	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C64A	4700		D40055-1	BPD-005	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700			BPD-005		TM5D5	811-005	DC-525		
C	4700		D40053-473	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C66A	4700		D40055-1	BPD-005	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700			BPD-005		TM5D5	811-005	DC-525		
C67	4700		D40053-473	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C68	1500		A40096	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C69	10000			BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C70	4700		D40053-473	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C71A	4700		D40055-1	BPD-005	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700			BPD-005		TM5D5	811-005	DC-525		
C72	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C73	.022	200	D25455-223	P488-022	DF-203	PTE4S22		PT4122	4TM-S22	
C74	56	500	C20411-560							
C75	10	500		1469-00001		SR5Q1		MCB215	MS-4'	
C76	.047	400	D25461-473	P488-047	DF-503	PTE4B47		PT4147	4TM-S47	
C77	10	500	C20290-100	1469-00001		SR5Q1	NP0K-470	MCB215	MS-41	
C78	.7		C20290-100	B4NP0	TCZ-47			PT4147	5TCC-Q47	
C79	.047	400	D25461-473	P488-047	DF-503	PTE4B47		PT4147	4TM-S47	
C80	.22	400	D25462-224	P488-22		PTE4P22		PT4025	4TM-P22	
C81	.01	600	D25461-103	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C82	.1	1000	D25470-104	P1088-1		PTE10P1		PT1601	MB-P1	
C83	.047	200	D25455-473	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C84	4700		D40053-472	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C85	1000	1000	D41008-102					MCK210		
C86	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C87	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C88	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C89	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C90	227			SI320	D6-221	SW5T25	GP2K-221	UC-5322	5GA-T22	
C91	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C92	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C93	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C94	500	500	C20290-501	1468-0005	D6-501	5W5T5	GP2K-501	MC245	1FM-35	
C95	1000		D40054-104	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C96	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C97	2000		D40054-202	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C98	3300		D40054-332	SI330	D6-332	PTE6D33	GP2-333-332	UC-5333	5HK-D33	
C99	2000		D40054-202	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C100	270	500	C203 90-271	1468-0003	D6-271	5W5T3	GP3K-271	MC241	1FM-33	
C101	10000		D40053-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C102	4700		D40108-472	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C103	.047	400	D25461-473	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C104	270	500	C20290-271	1469-0003		5R5T3		MCB241	MS-33	
C105	.047	400	D25461-473	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C106	.1	200	D25455-474	P288-47		PJ2P5		PT405	2TM-P47	
C107A	.0022			P688-0022		PTE6D22		PT622		
B	.0047		#C24166	P688-0047	#PC-100	PTE6D47	#1405-01	PT625	#10IC1	
C	.0047			P688-0047		PTE6D47		PT625		
C108	.0047	600	C20324-472	1464-005		UDR5D5		MCB465	MS-25	
C109	1500		D40054-152	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C110	.047	600	D25461-473	P688-047		PTE6B47		PT6147	6TM-S47	
C111	.1	600	D25461-104	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C112	.022	600	D25455-223	P688-022		PTE6S22		PT6122	6TM-S22	
C113	1000		D40054-102	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C114	1000		D40054-102	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C115	.01	400	D25462-103	P488-01	D6-103	PTE4S1	GP2-333-103	PT401	4TM-S1	
C116	4700		D40054-472	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C117	.047	200	D25455-473	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C118	3900	500	C20433-392	1464-004		UDR5D4		MCB463	MS-24	
C119	330	500	C30290-331	1469-00035						
C120	100	500	C20290-101	1469-0001		5R5T1		MCB235	MS-31	
C121	330	500	C20290-331	1469-00035						
C122	270	500	C20290-271	1469-0003		5R5T3		MCB241	MS-33	
C123	.1	400	D25462-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C124	.022	400	D25455-474	P288-47		PJ2P5		PT405	2TM-P47	
C125	.033	600	C20358-333	P688-033		PTE6S3			6TM-S3	
C126	.1	600	C20358-104	P688-1		PTE6P1		PT601	6TM-P1	
C127	.047	600	D25461-473	P688-047		PTE6B47		PT6147	6TM-S47	
C128	500	30000	A24994	HV20C	TV3-502	MMC-20TS	413-501		20DK-T5	
C129	500	20000	A24994	HV20C	TV3-502	MMC-20TS	413-501		20DK-T5	
C130	.1	400	D25462-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C131	4700		D40053-472	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	
C132	.047	600	D25461-473	P688-047	DF-503	PTE6B47		PT6147	6TM-S47	
C133	10000		D40108-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C134	10000		D40108-103	BPD-01	DD-103	TM5B1	821-01	DC-511	5HK-S1	
C135	4700		D40053-472	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D47	

Note 1. Not used in all Models.
Note 2. Some Models use .36MMF in this application.
Note 3. Some Models use 47MMF in this application.
Note 4. Some Models use 56MMF in this application. (Part #D25530-12)
• Items C107A, C107B, C107C, R107A, R107B, R107C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3000Ω		E22464-46	QJ-364*	RTV-259		UF33L	Vert. Linearity-Panel
B	2.5Meg						UR36A	Height-Rear
R2	2 Meg		E22464-19					Tone & RTV Phono Switch
R3A	100KΩ		E22464-18	QJ-128	AG-49-8	AB-60	U-41	Brightness
B	Shaft		Not Reg.	Not Reg.	KSB-3	AK-4	Not Reg.	Attach to R3A
R4A	30KΩ		E22464-45	QJ1-122	AG-42-8	AB-31	U-35	Horiz. Hold
B	Shaft		Not Reg.	Not Reg.	KSB-3	AK-4	Not Reg.	Attach to R4A

CONTROLS (CONT.)

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R5A	1.5Meg	1	E22464-29	QJ1-138	AG-83-S	AB-75	U-165	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	Not Req.	Attach to R5A
R6A	2500Ω	1	E22464-44	QJ-365**				Contrast-Panel
B	3Meg							Volume & Switch Tap@ 900KΩ-Rear
R7	3000Ω	1						Vert. Peaking-Wire Wound
R8A	3 Meg	1	E22464-47	QJ1-140	AG-85-S	AB-84	SU-59	AGC Threshold
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R8A
R9A	15KΩ	1	E22464-48	QJ1-119	AG-32-S	AB-32	SU-39	Bias
B	Shaft		Not Req.	RQ	FKS-1/4	AK-1	Not Req.	Attach to R9A

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-112 & P1-114 (Panel) B11-239 & R1-122.
** CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B17-11 & P1-204 (Panel) B18-1403 & R1-220 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ARVIN PART No.	IRC PART No.	NOTES
R10	10KΩ	1		BTS-10K	
R11	1000Ω	1		BTS-1000	
R12	100Ω	1		BTS-100	
R13	470KΩ	1		BTS-470K	
R14	1000Ω	1		BTS-1000	
R15	4700Ω	1		BTS-4700	
R16	10000Ω	1		BTS-10000	
R17	8200Ω	1		BTS-8200	
R18	3900Ω	1		BTS-3900	
R19	4700Ω	1		BTS-4700	
R20	220KΩ	1			
R21	220KΩ	1		BTS-220	
R22	2200Ω	1		BTS-2200	
R23	1000Ω	1		BTS-1000	
R24	15KΩ	1		BTS-15K	
R25	100KΩ	1	C22381-102	BTS-100K	Note 4
R26	10KΩ	2	C20302-103	BTS-10K	Note 1
R27	3900Ω	2		BTS-3900	Note 2
R28	3900Ω	2		BTS-3900	Note 1
R29	16KΩ-5%	2		BTS-16K-5%	Note 1
R30	1000Ω	1	C20061-102	BTS-1000	
R31	4700Ω	1	C22381-472	BTS-4700	
R32	8200Ω-5%	1	C22382-822	BTS-8200-5%	
R33	100Ω-5%	1	C22382-101	BTS-100-5%	
R34	33KΩ	1	C22381-333	BTS-33K	
R35	1000Ω	1	C22381-102	BTS-1000	
R36	100Ω	1	C22381-101	BTS-100	
R37	5561-5%	2	C22382-560		
R38	33KΩ	1	C22381-333	BTS-33K	
R39	1000Ω	1	C20061-102	BTS-1000	
R40	68001-5%	1	C22382-682	BTS-6800-5%	
R41	68Ω-5%	1	C22382-680		
R42	4700Ω	1	C22381-472	BTS-4700	
R43	1000Ω	1	C22381-102	BTS-1000	
R44	56KΩ	1	C22381-563	BTS-56K	
R45	180Ω	1	C22381-181	BTS-180	
R46	33KΩ	1	C22381-333	BTS-33K	
R47	6800Ω	1	C20070-682	BTA-6800	
R48	3900Ω-5%	1	C22382-392	BTS-3900-5%	
R49	470	1	C22381-470		
R50	33KΩ	1	C22381-333	BTS-33K	
R51	22KΩ	1	C22381-223	BTS-22K	
R52	3900Ω-5%	1	C22382-392	BTS-3900-5%	
R53	2700Ω-5%	1	C22382-272	BTS-2700-5%	
R54	1 Meg	1	C22381-105	BTS-1 Meg	
R55	47000Ω-5%	2	C22467-472	BTS-4700-5%	
R56	4700Ω-5%	2	C22467-472	BTS-4700-5%	
R57	1000Ω	2		BTS-1000	Note 1
R58	470KΩ	1	C30081-474	BTS-470K	
R59	8200Ω	1	C22381-822	BTS-8200	
R60	22KΩ	1	C20061-223	BTS-22K	
R61	100KΩ	1	C20061-104	BTS-100K	Note 3
R62	150KΩ	1	C20061-154	BTS-150K	Note 1
R63	68KΩ	1	C22381-683	BTS-68K	
R64	33KΩ	1	C22381-333	BTS-33K	
R65	470KΩ	1	C20061-474	BTS-470K	
R66	821-5%	1	C22382-820	BTS-82-5%	
R67	1000Ω	1	C20061-102	BTS-1000	
R68	1000Ω	1	C20061-102	BTS-1000	
R69	47KΩ	1	C22381-473		
R70	680-5%	1	C22382-680		
R71	33KΩ	1	C22381-333	BTS-33K	
R72	1000Ω	1	C20061-102	BTS-1000	
R73	390Ω-5%	1	C22382-391	BTS-390-5%	
R74	47KΩ	1	C22381-473	BTS-47K	
R75	10KΩ-5%	1	C22382-103	BTS-10K-5%	
R76	10KΩ-5%	1	C22382-103	BTS-10K-5%	
R77	100KΩ	1	C20061-104	BTS-100K	
R78	220KΩ	1	C20061-224	BTS-220K	
R79	10 Meg	1	C20061-106	BTS-10 Meg	
R80	150KΩ	1	C20061-154	BTS-150K	
R81	100KΩ	1	C20061-104	BTS-100K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ARVIN PART No.	IRC PART No.	NOTES
R82	470KΩ	1	C20061-474	BTS-470K	
R83	330Ω	1	C30070-331	BTA-330	
R84	15KΩ	1	C22381-153	BTS-15K	
R85	2000Ω	5	C23970-18	1 3/4A-2000	
R86	3.3Meg-5%	1	C22382-335	BTS-3.3Meg-5%	
R87	33KΩ-5%	1	C33382-333	BTS-33K-5%	
R88	10KΩ-5%	1	C22382-103	BTS-10K-5%	
R89	120KΩ-5%	1	C22382-124	BTS-120K-5%	
R90	120KΩ-5%	1	C22382-124	BTS-120K-5%	
R91	10KΩ-5%	1	C22382-103	BTS-10K-5%	
R92	120KΩ-5%	1	C22382-124	BTS-120K-5%	
R93	330KΩ-5%	1	C22382-334	BTS-330K-5%	
R94	2700Ω-5%	1	C22382-272	BTS-2700-5%	
R95	820Ω-5%	1	C22382-821	BTS-820-5%	
R96	150KΩ	1	C22381-154	BTS-150K	
R97	2.2Meg	1	C22381-225	BTS-2.2Meg	Note 5
R98	22KΩ	1	C22381-223	BTS-22K	
R99	47KΩ	1	C30070-473	BTA-47K	
R100	270KΩ	1	C22381-274	BTS-270K	
R101	560KΩ	1	C22381-564	BTS-560K	
R102	47KΩ	1	C22381-473	BTS-47K	
R103	1100Ω-5%	1	C22382-112	BTS-1100-5%	
R104	4700Ω	1	C22381-472	BTS-4700	
R105	820Ω-5%	1	C22382-821	BTS-820-5%	
R106	1800Ω-5%	1	C22382-182	BTS-1800-5%	
R107A	22KΩ			BTS-22K	
B	8200Ω		• C24166	BTS-8200	
C	8200Ω			BTS-8200	
R108	22KΩ	1	C22381-223	BTS-22K	
R109	1.5Meg-5%	1	C22382-155	BTS-1.5Meg-5%	
R110	470KΩ	1	C22381-474	BTS-470K	
R111	100KΩ	1	C22381-104	BTS-100K	
R112	10 Meg	1	C22381-106	BTS-10 Meg	
R113	1.5Meg-5%	1	C22382-106	BTS-1.5Meg-5%	
R114	9100Ω-5%	1	C22382-912	BTS-9100-5%	
R115	2.2Meg	1	C22381-225	BTS-2.2Meg	
R116	150Ω	1	C30061-151	BTS-1500	
R117	39KΩ	2	C20302-393	BTS-39K	
R118	33KΩ	2	C20302-333	BTS-33K	
R119	100K-5%	1	C22382-104	BTS-100K-5%	
R120	100KΩ-5%	1	C22382-104	BTS-100K-5%	
R121	4.7Meg	1	C22381-475	BTS-4.7Meg	
R122	1 Meg	1	C22381-105	BTS-1 Meg	
R123	1200Ω	1	C22381-122	BTS-1200	
R124	8200Ω	1	C20070-822	BTA-8200	
R125	81KΩ-5%	1	C22382-813	BTS-81K-5%	
R126	120KΩ	1	C22381-124	BTS-120K	
R127	8200Ω	1	C22381-822	BTS-8200	
R128	470KΩ	1	C22381-474	BTS-470K	
R129	47Ω	1	C20061-470		
R130	220Ω	5	C23970-16	1 3/4A-225	
R131	27KΩ	2	C20302-273	BTB-27K	
R132	27KΩ	2	C20302-273	BTB-27K	
R133	27KΩ	2	C20302-273	BTB-27K	
R134	1800Ω	5	C20302-182	BTB-1800	
R135	3.9Ω	1	C20308-30		
R136	220KΩ	2	C25228-224		
R137	220KΩ	2	C25228-224		
R138	220KΩ	2	C25228-224		
R139A	347Ω				
B	2481	10	C40032		
C	1150Ω				
R140	10KΩ	2	C20302-103	BTB-10K	
R141	50Ω	5	C23970-8	1 3/4A-50	
R142	22Ω	2	C22381-220		
R143	220KΩ	2	C20061-224	BTS-220K	
R144	56KΩ	2	C22381-563	BTS-56K	
R145	560KΩ	2	C22381-564	BTS-560K	

Note 1. Not used in all models.
Note 2. Some models may use a 15KΩ resistor in this application.
Note 3. Some models use a 220KΩ resistor in this application.
Note 4. Some models use a 270KΩ resistor in this application.
Note 5. Some models use a 4.7Meg resistor in this application.
• Items R107A, R107B, R107C, C107A, C107B, C107C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA ARVIN PART No	STANCOR PART No	MERIT PART No	CHICAGO PART No	TRIAD PART No
T1	117VAC @ 2.4A	810VCT @ .320ADC	5 VAC @ 6A	6.3VAC @ 10.3A	E-254919			TP-319	H-50BC

TRANSFORMER (SWEEP CIRCUITS)

ITEM No	RATING DC RESISTANCE PRI	RATING DC RESISTANCE SEC	REPLACEMENT DATA ARVIN PART No.	STANCOR PART No	MERIT PART No	CHICAGO PART No	TRIAD PART No	NOTES
T2	190Ω	1050Ω	C22446-1	A-8122 ①	A-4003	TBO-3 ②	A-97Y	Vert. Osc. Trans.
T3	407Ω	35.5ΩTap 3.5Ω Tap 22Ω	E-40117	A-8130 ③④	HVO-7 ⑤	TFB-5 ③④	D-14 ⑤	Horiz. Output Trans.
		SEC. 2 3.5Ω						
		SEC. 3 .0Ω						
T4	1594Ω Tap @ 4.4Ω		C-24990-2	A-8141	A-3049	TSO-12	A-104X	Vert. Output Trans.
T5A	24Ω		D-24807			TY-6	Y-19	Horiz. Deflection Coils.
B	46Ω							Vert. Deflection Coils.

① Drill one new mtg. hole.
② Use with width coil WC-5.
③ Use with width coil MWC-1.
④ Use with width coil (one with AGC winding) of approx. 4 to 29 MH range .
⑤ Use with width coil WC-11.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE	RATING DC RES PRI.	RATING DC RES SEC.	REPLACEMENT DATA ARVIN PART No	STANCOR PART No	MERIT PART No	CHICAGO PART No	TRIAD PART No	NOTES
T6	5.7KΩ	3.8Ω	478Ω	68Ω	C-24776-4	A-3877 ①	A-3019	RO-9 ①	S-5X ① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP	REPLACEMENT DATA ARVIN PART No	VIKING PART No	QUAM PART No	NOTES
SP1	10"	PM	3.8Ω	D25519	10J1I	1-A3.	

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT (000 "Ω")	REPLACEMENT DATA ARVIN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.290A	45.6Ω	18Y	C22581-3	C-2328 ①	C-2998 ①	TR-1733①	C-17X

① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ARVIN PART No.	MERIT PART No	IRC PART No	NOTES
L2	UHF Ant. Coil	.1Ω					
L3	UHF Ant. Coil	.1Ω					
L4	UHF Coils	0Ω					
L5	UHF Coil						
	End Inductor	0Ω					
L6	UHF Coil						
	End Inductor	0Ω					
L7	RF Choke	0Ω					
L8	Cathode Choke	0Ω					
L9	Fil. Choke	0Ω					Wound on 330Ω resistor.
L10	Fil. Choke	0Ω					Wound on 330Ω resistor.
L11	RF Choke	0Ω					
L12	UHF Coil						
	End Inductor	0Ω					
L13	RF Choke	0Ω					
L14	UHF IF Coil	0Ω					
L15	Neutralizing Coil	0Ω					
L16	Fil. Choke	.1Ω					
L17	Fil. Choke	.1Ω					
L18	UHF 127MC IF Trans.	0Ω	.1Ω				Includes 15K Resistor.
L19	UHF IF Coupling	0Ω	0Ω				
L20A	Ant. Trans.	0Ω	0Ω				
B	Ant. Trans.	0Ω	0Ω				
L21	Ant. Coils	0Ω					
L22	Ant. Coil	0Ω					
L23	RF Coil	0Ω					
L24	RF Coils	0Ω					
L25	Mixer Grid Coil	0Ω					
L26	Mixer Grid Coils	0Ω					
L27	Osc. Plate Coil	0Ω					
L28	Osc. Coils	0Ω					
L29	Fil. Choke	0Ω					
L30	Fil. Choke	.2Ω				CL-1	.56Microhenries.
L31	Conv. Plate	.1Ω					
L32	1st Video IF	0Ω					Includes Trap, Also 22KΩ Resistor & .0047 MFD Capacitor.
L33	2nd. Video IF Plate	.1Ω		D40070			Includes Trap, Also 4.7K Resistor
L34	2nd. Video IF Grid	.1Ω		D40071			Includes Trap
L35	Fil. Choke	0Ω		A32095			
L36	3rd Video IF	.2Ω	.2Ω	D40072			
L37	4th. Video IF	.2Ω	.2Ω	D40072			

ARVIN MODELS 7210CB, CM, 7212CFP, MEA, 7214CM, 7216CB, 7218CB, CM, 7219CM (Ch. TE-341-1)

PARTS LIST AND DESCRIPTIONS (Continued)

RF-IF COILS (CONT.)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	ARVIN PART No.	MERIT PART No.	IRC PART No.	
L38	Series Peaking Coil	3.7Ω		D25468-11	TV-181- *		72 Microheneries-Wound on 3.3K Resistor
L39	Shunt Peaking Coil	11.5Ω		D25468-12	TV-188 ‡		500Microheneries-Wound on 6.8K Resistor.
L40	Series Peaking Coil	5Ω		D25468-13	TV-181 ■		120Microheneries-Wound on 15K Resistor
L41	Shunt Peaking Coil	4Ω		D25468-10	TV-181		93Microheneries
L42	Series Peaking Coil	5Ω		D25468-13	TV-181 ■		120Microheneries-Wound on 15K Resistor
L43	4.5MC Trap	1.6Ω		C25609	TV-151		
L44	Shunt Peaking Coil	4Ω		D25468-10	TV-181		93Microheneries
L45	1st. Sound IF	7Ω		D40075			Tapped @ 1.6Ω
L46	2nd Sound IF	5.2Ω	3.2Ω	D40077	TV-113 ▲		
L47	Ratio Det.	3.4Ω	12ΩCT	D25322	TV-110		Tertiary Winding -.7Ω
L48	Horiz. Osc.	63Ω		C23449	TV-163		
L49	Width Coil	11Ω		C40098	MWC-2		
L50	Horiz. Lin.	5.7Ω		C40028			Tapped @ 4.3Ω
L51	RF Choke	.72Ω		A40377		CL-1	1.5Microheneries

* Parallel with 3.3K resistor.
■ Parallel with 15K resistor.
‡ Parallel with 6.8K resistor.
▲ Use adaptor plate

FUSES

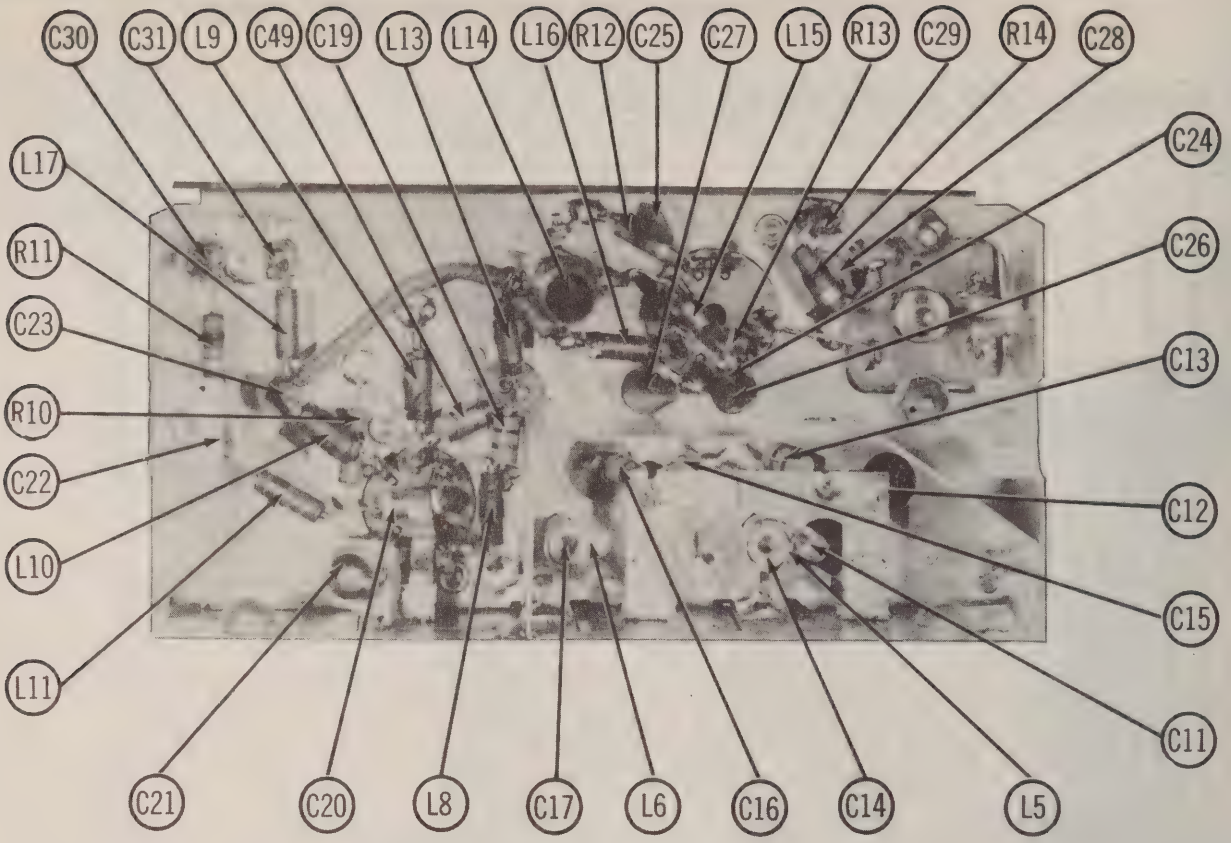
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ARVIN PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG (P/T)	1/4 A. 250V.	A22493		318.250		GJV 1/4	

DIAL LIGHTS

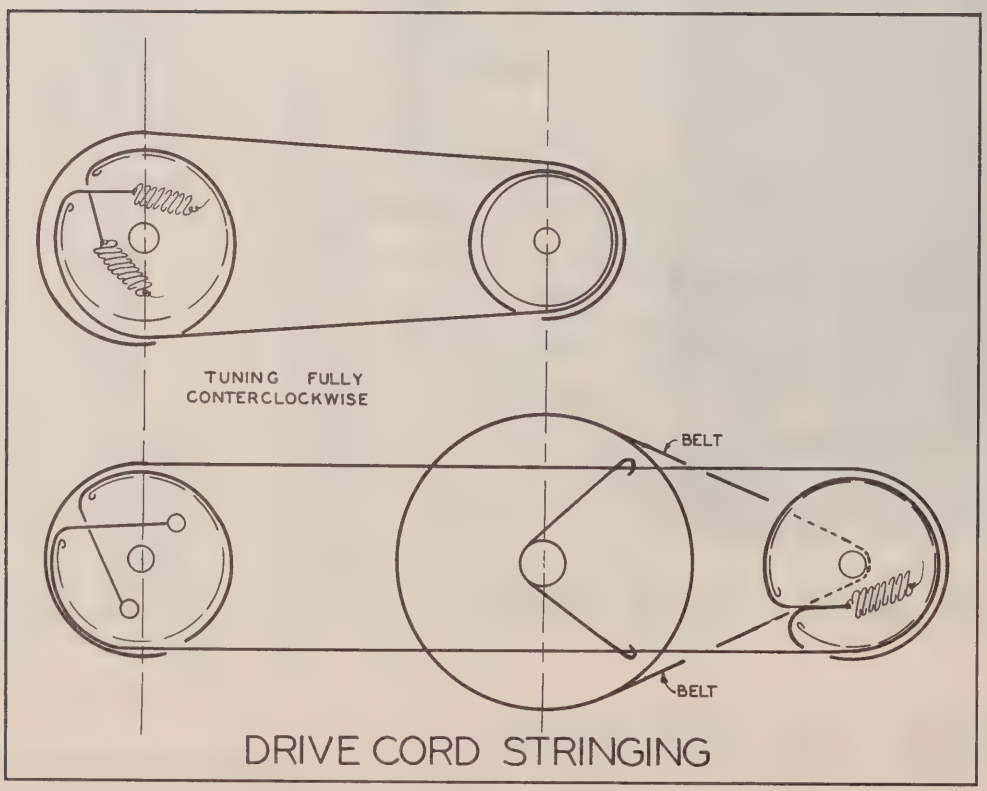
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					ARVIN PART No.		
M2	Bayonet	6-8	.15	Brown			Type No. 47

MISCELLANEOUS

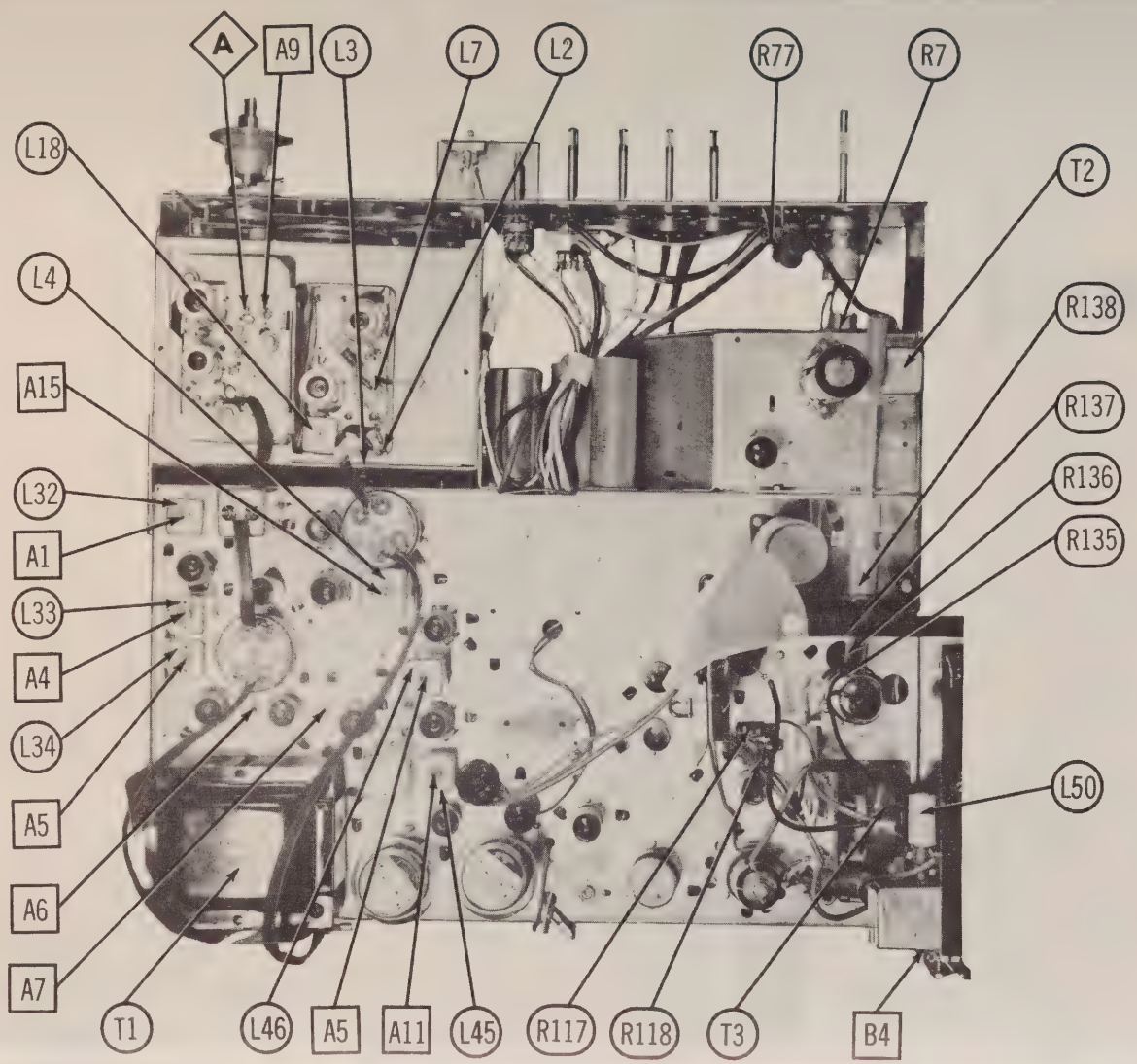
ITEM No.	PART NAME	ARVIN PART No.	NOTES
M3	RF Tuner	AE25267-2	Dual Assembly VHF & UHF Tuners
M4	IF & FM Trap	C25963	
M5	Band Elimination Filter	C40364	
M6	Band Elimination Filter	C40364	
M7	Resistor		10KΩ
	Capacitor		8MMF
	5th. Video IF Crtstal		1N64
	Capacitor		10 MMF
	RF Choke		Video Det. Assembly Part No. D40073
M8	Crystal		1N72 (UHF Mixer)
M9	Switch	A25525	Local & Fringe
M10	Centering Magnet	D25626	
M11	Ion Trap	C25662-1	
B2	Trimmer	A24528	Horiz. Drive (40-370MMF)
	Knob	D25077-1	Channel Selector (Mahogany)
	Knob	D25077-3	Channel Selector (Blonde)
	Knob	D25077-2	Channel Selector (Model 7212CFP)
	Knob	D25077-4	Channel Selector (Model 7212MEA)
	Knob	D25094-1	Fine Tuning & UHF (Mahogany)
	Knob	D25094-3	Fine Tuning & UHF (Blonde)
	Knob	D25094-2	Fine Tuning & UHF (Model 7212CFP)
	Knob	D25094-4	Fine Tuning & UHF (Model 7212MEA)
	Knob	D25736-1	Off/On Volume (Mahogany)
	Knob	D25736-3	Off/On Volume (Blonde)
	Knob	D25736-2	Off/On Volume(Model 7212CFP)
	Knob	D25736-4	Off/On Volume(Model 721MFA)
	Knob	C25735-1	Contrast (Mahogany)
	Knob	C25735-3	Contrast (Blonde)
	Knob	C25735-2	Contrast (Model 7212CFP)
	Knob	C25735-4	Contrast (Model 7212MEA)
	Knobs	C24699-4	Behind Control Door (4)
	Plug	C24699-4	To Cover Vert. Lin. & Height Controls.
	Control Door	C23746-1	Includes Escutcheon (Mahogany)
	Control Door	AE40082-1	Includes Escutcheon (Blonde)
	Control Door	AE40082-3	Includes Escutcheon (Model 7212CFP)
	Control Door	AE40082-4	Includes Escutcheon (Model 7212MEA)
	Mask	R40382	Plastic
	Dust Seal	C25909-2	
	Safety Glass	E24947	
	Back Cover	AE25495-7	Model 7214CM
	Back Cover	AE25495-6	Model 7212MEA
	Back Cover	AE25495-5	



UHF TUNER – BOTTOM VIEW



DRIVE CORD STRINGING



CHASSIS TOP VIEW

PHOTOFACT* Folder

*TRADE MARK

CBS-COLUMBIA MODELS 17C18, 17M18, 17T18, (Ch. 817, -1), 20M18, 20M28, 20T18 (Ch. 820, -1)

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MODEL 17M18

CBS-COLUMBIA MODELS 17C18, 17M18, 17T18, (Ch. 817, -1), 20M18, 20M28, 20T18 (Ch. 820, -1)

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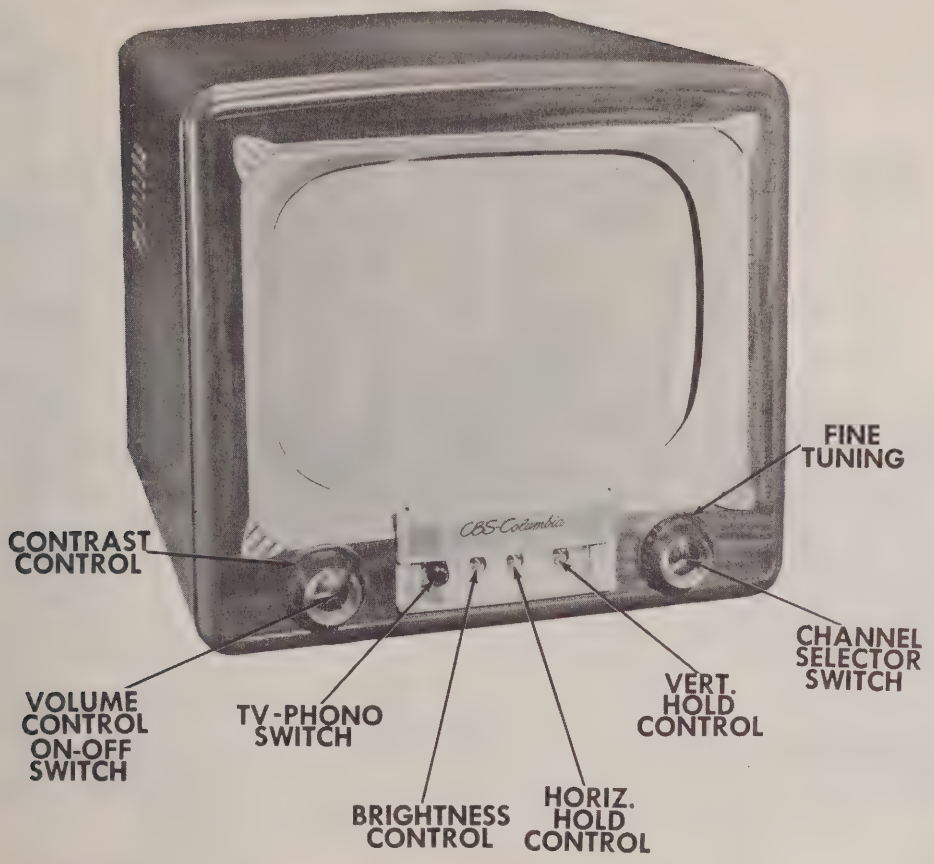

CBS-COLUMBIA MODEL 17M18

TRADE NAME	CBS-Columbia Models 17C18, 17M18, 17T18,(Ch. 817, 817-1), 20M18, 20M28, 20T18, (Ch. 820, 820-1)
MANUFACTURER	CBS-Columbia Inc, 170-53rd. St., Brooklyn 32, New York.
TYPE SET	Television Receiver
TUBES	Twenty-One
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.9 Amp @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

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CBS-COLUMBIA MODELS 17C18, 17M18, 17T18, (Ch. 817, -1), 20M18, 20M28, 20T18 (Ch. 820, -1)

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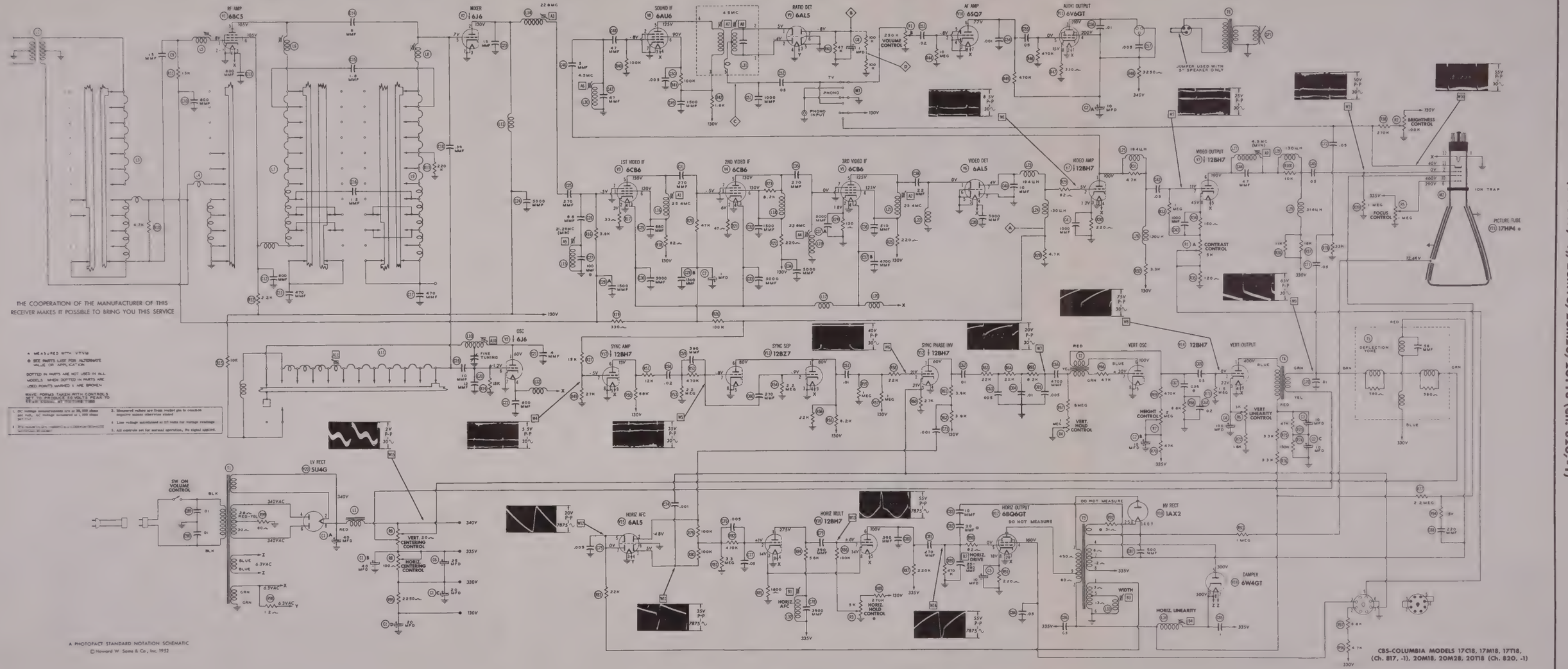
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RF AMP 6BC5
MIXER 6J6
OSC 6J6
SOUND IF 6AU6
RATIO DET 6AL5
AF AMP 6SQ7
AUDIO OUTPUT 6V6GT
1ST VIDEO IF 6CB6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6CB6
VIDEO DET 6AL5
VIDEO AMP 12BH7
VIDEO OUTPUT 12BH7
SYNC AMP 12BH7
SYNC SEP 12BZ7
SYNC PHASE INV 12BH7
VERT OSC 12BH7
VERT OUTPUT
HORIZ AFC 6AL5
HORIZ MULT 12BH7
HORIZ OUTPUT 6BQ6GT
HV RECT 1AX2
DAMPER 6W4GT
LV RECT 5U4G
PICTURE TUBE 17HP4
ION TRAP
BRIGHTNESS CONTROL
FOCUS CONTROL
CONTRAST CONTROL
VOLUME CONTROL
HEIGHT CONTROL
VERT. HOLD CONTROL
VERT. LINEARITY CONTROL
VERT. CENTERING CONTROL
HORIZ. CENTERING CONTROL
HORIZ. AFC
HORIZ. HOLD CONTROL
HORIZ. DRIVE
WIDTH
HORIZ. LINEARITY
SW ON VOLUME CONTROL
DEFLECTION YOKE
JUMPER USED WITH 5" SPEAKER ONLY
PHONO INPUT
DO NOT MEASURE
A MEASURED WITH VTVM
B SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK ACROSS 47,000 OHM, 47 MMF LOAD
1. DC voltage measurements are at 30,000 ohms per volt. AC voltage measured at 1,000 ohms per volt.
2. Measured values are from socket pin to common negative unless otherwise stated
3. Line voltage maintained at 117 volts for voltage readings
4. All controls set for normal operation, No signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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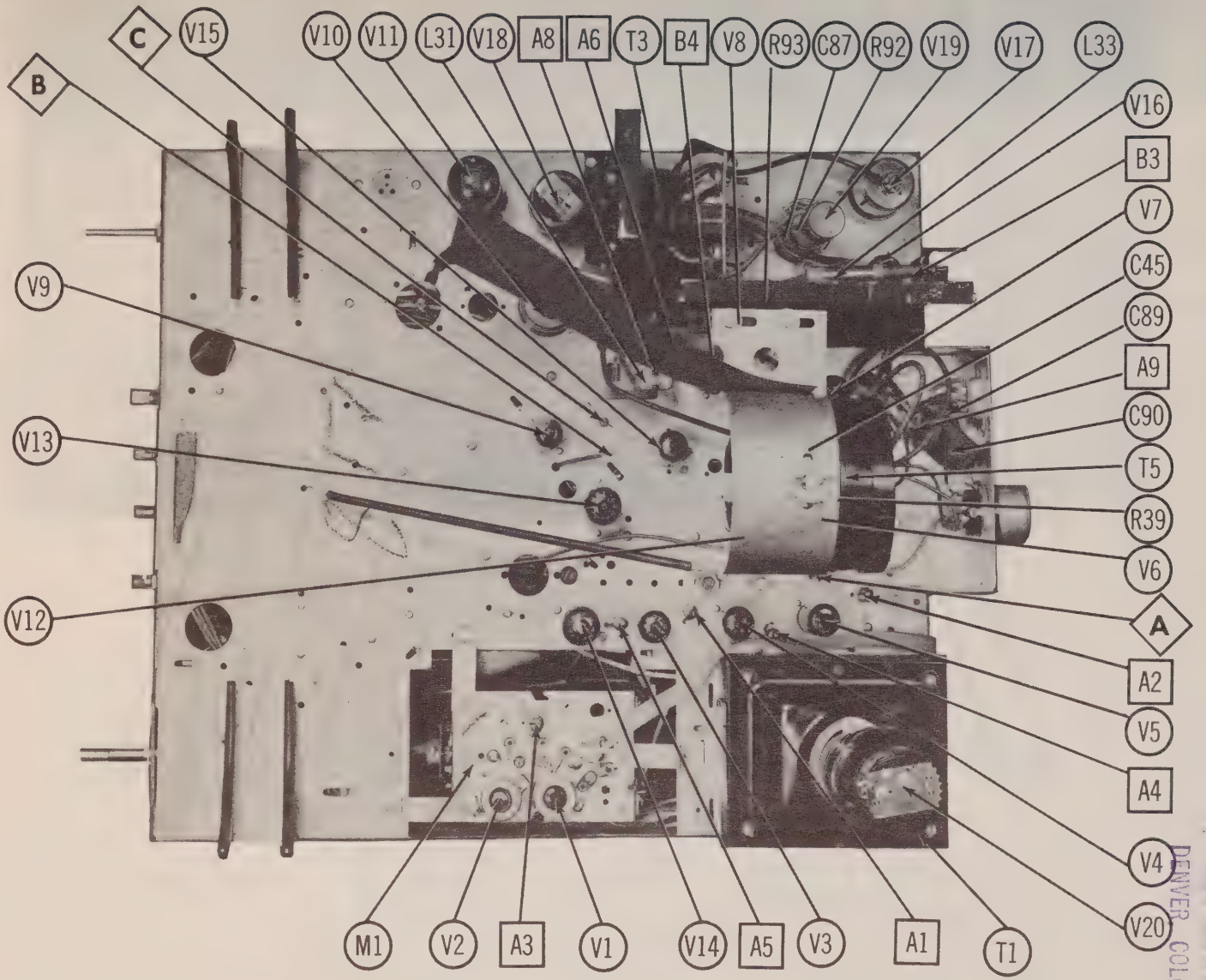

CHASSIS TOP VIEW

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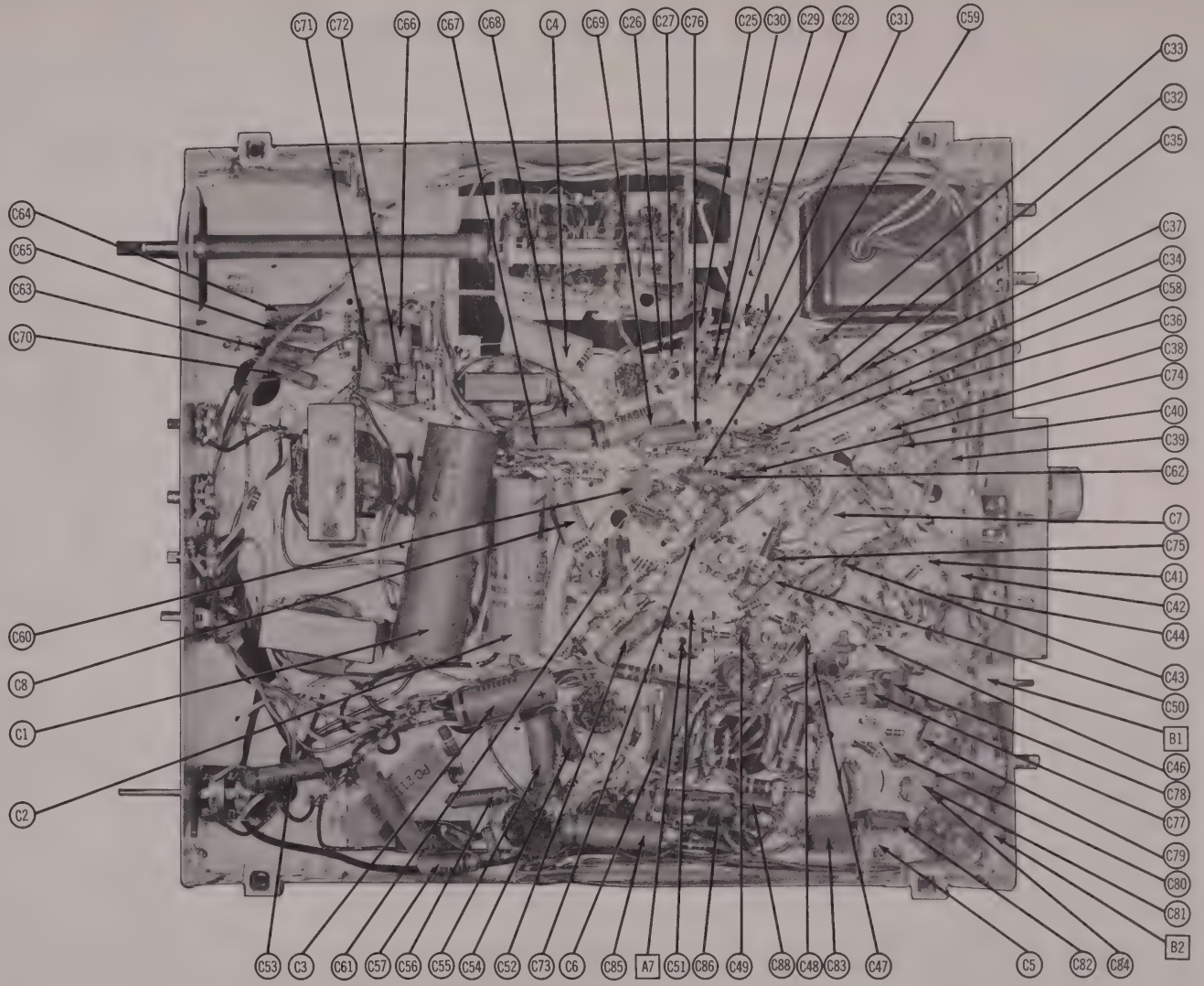
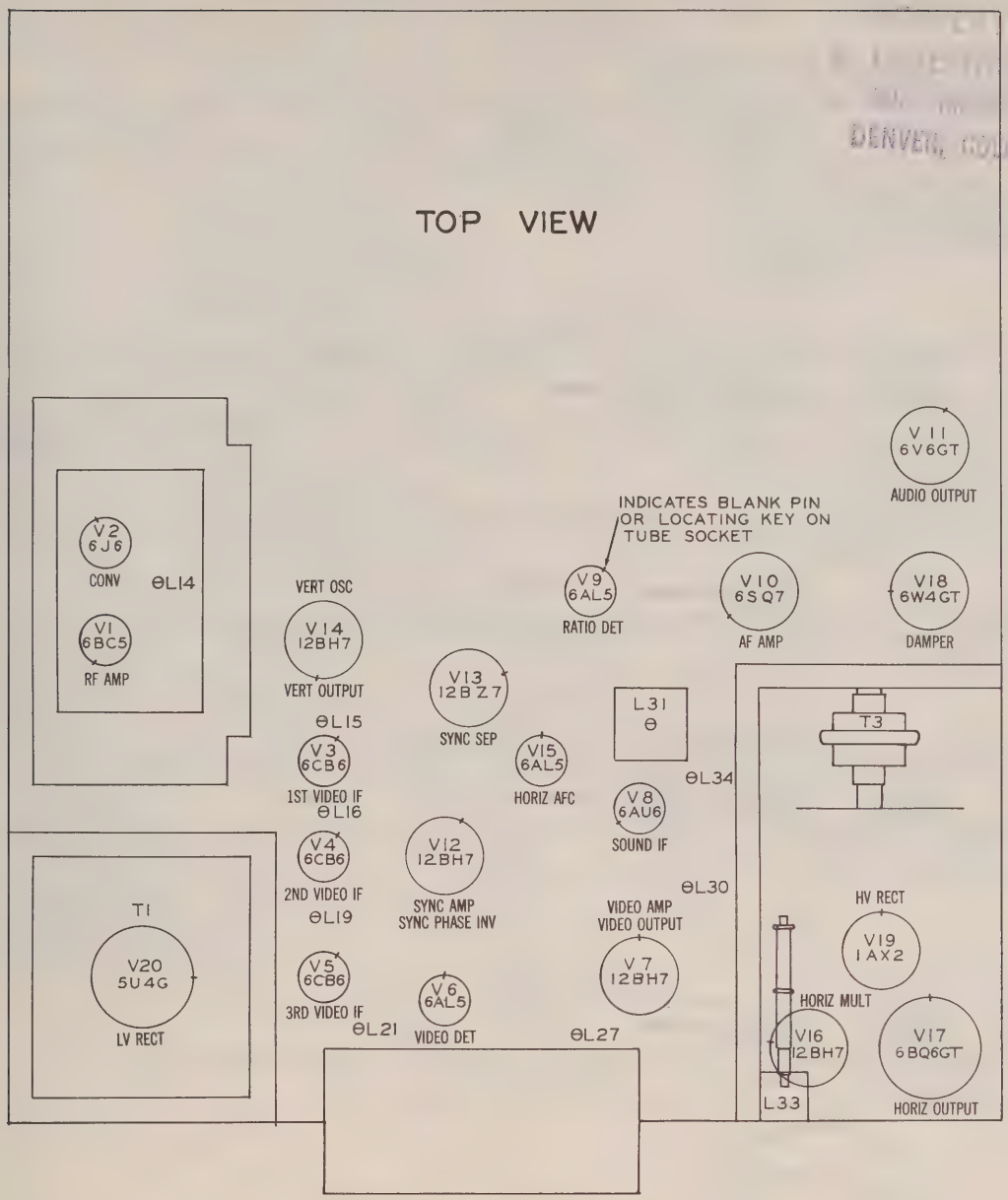


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V20

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V7, V21
Has pic, no sound -V8, V9, V10, V11

SYNC FAILURE
No vert. sync.-V12, V14
No horiz. sync-V12, V15, V16
No vert. or horiz. sync-V12, V13

SWEEP FAILURE
No raster, has sound-V16, V17, V18, V19, V21
No vertical deflection-V14
Poor vert. linearity or foldover-V14
Poor horiz. linearity or foldover-V16, V17, V18
Narrow picture-V16, V17, V18, V19, V20
Vert off freq.-V12, V14
Horiz. off freq.-V12, V15, V16

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard can be eliminated by removing the horizontal multivibrator tube (V16).

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded side of C7. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.4MC (Unmod)	Any	DC probe to point (A) Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	22.8MC	"	"	A3, A4	"
3.	"	"	21.75MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to an grounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.25MC 25.75MC	Any	Vert amp to point (A) Low side to chassis.		Check for response curve similar to fig. 1. If necessary retouch A1 thru A4 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point (B) to chassis. The junction of these two resistors is alignment point (D) as shown on schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.001MFD	High side to pin 2 (grid) of 12BH7 (V7). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point (B) Common to chassis.	A6, A7	Adjust for maximum deflection.
6.	"	"	"	"	DC probe to point (C) Common to point (D)	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to pin 2 (grid) of 12BH7 (V7). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp to point (B) Low side to chassis.	A6, A7	Disconnect stabilizer capacitor C8. Adjust for curve of maximum amplitude and symmetry as in fig. 2.
6.	"	"	"	"	"	Vert. amp to point (C) Low side to chassis.	A8	Reconnect capacitor C8. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	27KΩ	High side to pin 2 (grid) of picture tube. Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point (B) Common to chassis.	A9	Adjust for MINIMUM deflection.

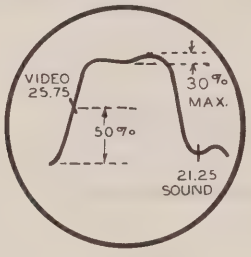


FIG. 1

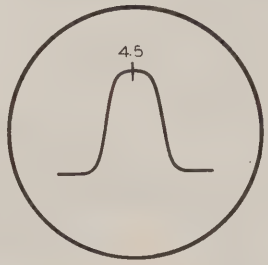


FIG. 2

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

Remove dummy converter tube and replace original 6J6 in its socket.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors.	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp.)	211.25MC 215.75MC	13	Vert. amp. to point (A). Low side to chassis.	A10	Adjust to place sound marker in trap notch as in fig. 4. Video marker should be at 50%.
9.	"	"	207MC (10MC Swp.)	205.25MC 209.75MC	12	"		Check for marker placement as shown in fig. 4. Retouch A10, if necessary, to bring any individual channel within range of fine tuning control then re-check all other high bank channels to see that they have not been seriously affected.
			201MC (10MC Swp.)	199.25MC 203.75MC	11			
			195MC (10MC Swp.)	193.25MC 197.75MC	10			
			189MC (10MC Swp.)	187.25MC 191.75MC	9			
			183MC (10MC Swp.)	181.25MC 185.75MC	8			
			177MC (10MC Swp.)	175.25MC 179.75MC	7			
10.	"	"	85MC (10MC Swp.)	83.25MC 87.75MC	6	"	A11	Adjust to place sound marker in trap notch as in fig. 4. Video marker should be at 50%.
11.	"	"	79MC (10MC Swp.)	77.25MC 81.75MC	5	"		Check for marker placement as shown in fig. 4. Retouch A11 if necessary, to bring any individual channel within range of fine tuning control then re-check all other low band channels to see that they have not been seriously affected.
			69MC (10MC Swp.)	67.25MC 71.75MC	4			
			63MC (10MC Swp.)	61.25MC 65.75MC	3			
			57MC (10MC Swp.)	55.25MC 59.75MC	2			

RF ALIGNMENT

The RF section of this tuner has been properly aligned at the factory and is very stable.
Alignment of this portion should not be required in the field.

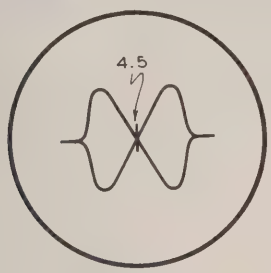


FIG. 3

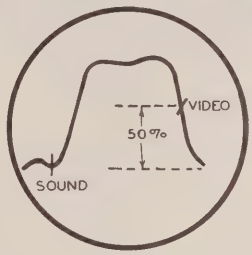


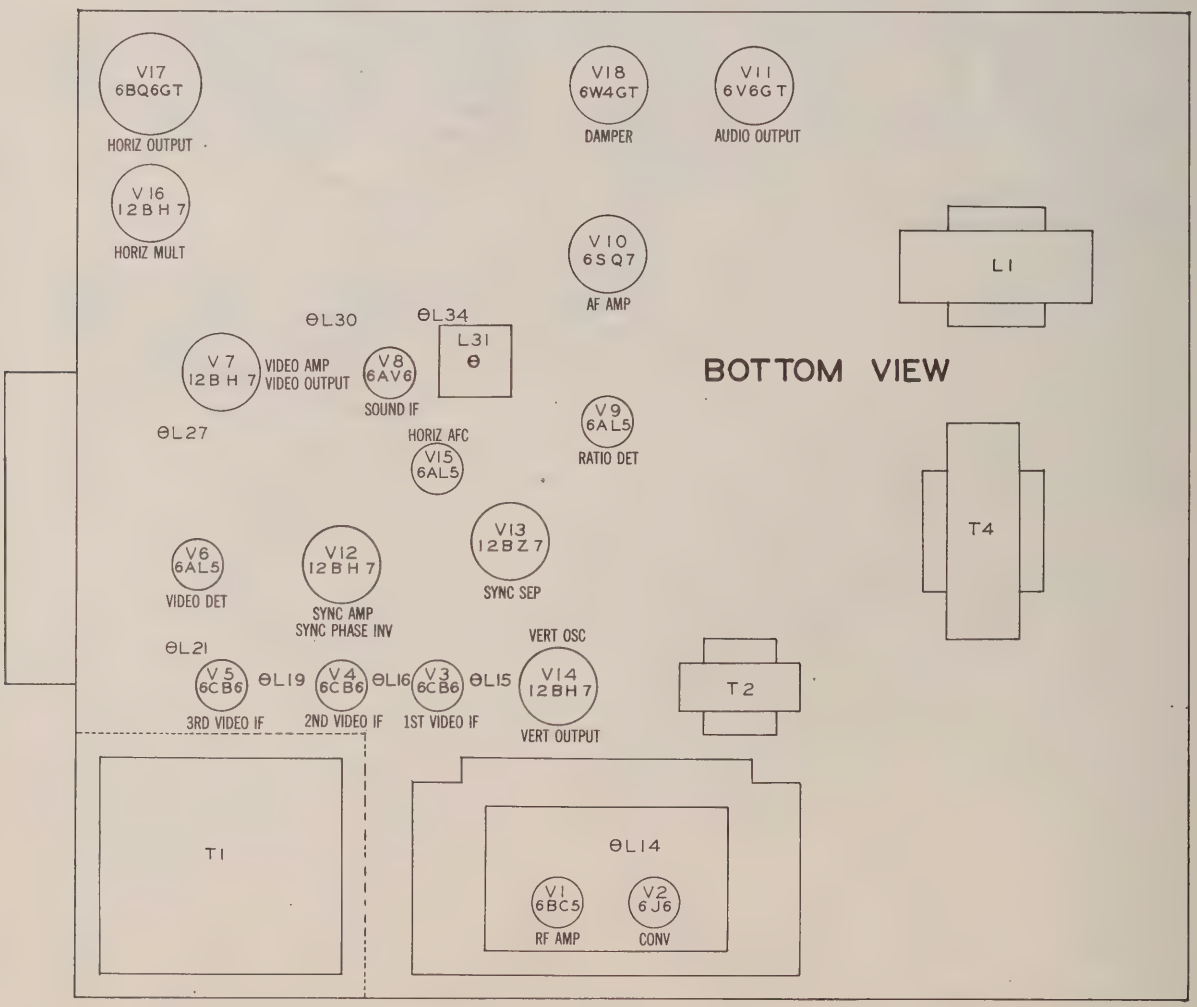
FIG. 4

DENVER, COLORADO

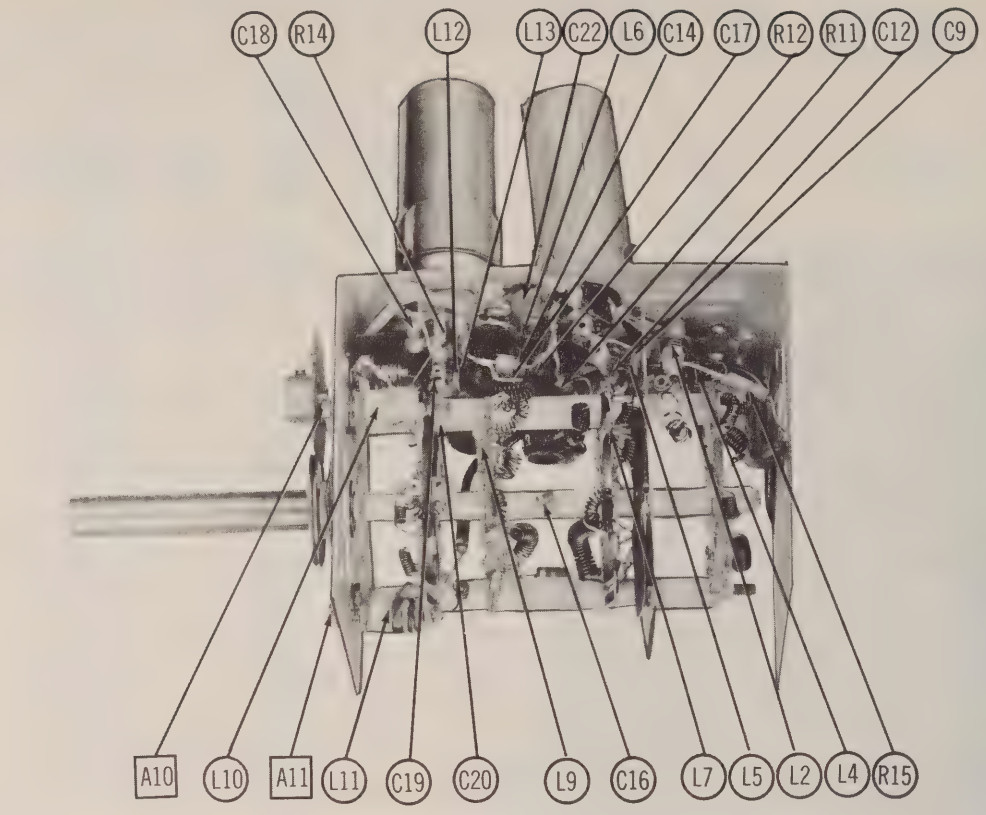
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	120KΩ	0Ω	.1Ω	0Ω	†4.5KΩ	†4.5KΩ	0Ω		
V 2	6J6	†12.3KΩ	†2.3KΩ	0Ω	.1Ω	220KΩ	15KΩ	0Ω		
V 3	6CB6	107KΩ	33Ω	.64Ω	0Ω	†2.4KΩ	†2.4KΩ	0Ω		
V 4	6CB6	150KΩ	47Ω	.64Ω	0Ω	†2.5KΩ	†2.5KΩ	0Ω		
V 5	6CB6	.2Ω	150Ω	.37Ω	0Ω	†2.5KΩ	†2.5KΩ	0Ω		
V 6	6AL5	2.7Ω	0Ω	0Ω	.1Ω	0Ω	0Ω	4.3KΩ		
V 7	12BH7	†5.6KΩ	4.3KΩ	220Ω	.1Ω	.1Ω	†6.8KΩ	1 Meg	1.1KΩ	0Ω
V 8	6AU6	100KΩ	0Ω	0Ω	.1Ω	4.1KΩ	†105KΩ	0Ω		
V 9	6AL5	INF	INF	1.3Ω	0Ω	0Ω	0Ω	47KΩ		
V 10	6SQ7	0Ω	10 Meg	0Ω	0Ω	0Ω	†475KΩ	.1Ω	0Ω	
V 11	6V6GT	INF	0Ω	†3.6KΩ	†3.3KΩ	470KΩ	INF	.1Ω	330Ω	
V 12	12BH7	†10KΩ	550KΩ	2.7KΩ	0Ω	0Ω	†70KΩ	11KΩ	0Ω	1Ω
V 13	12BZ7	†10.5KΩ	2.2Meg	0Ω	0Ω	0Ω	†10.5KΩ	2.6Meg	0Ω	1Ω
V 14	12BH7	#8.6KΩ	1.5Meg	2.5KΩ	0Ω	0Ω	†2.4Meg	2.4Meg	0Ω	.1Ω
V 15	6AL5	3.4Mgg	3.4Meg	0Ω	1.3Ω	22KΩ	0Ω	22KΩ		
V 16	12BH7	†5.6KΩ	3.8Meg	1.8KΩ	.1Ω	.1Ω	†220KΩ	100KΩ	1.8KΩ	0Ω
V 17	6BQ6GT	470KΩ	0Ω	INF	†11.5KΩ	470KΩ	INF	.1Ω	220Ω	Top Cap #87Ω
V 18	6W4GT	23KΩ	INF	200KΩ	INF	†97Ω	INF	200KΩ	200KΩ	
V 19	1AX2	PINS 1 - 9 HAVE INF RESISTANCE								Top Cap #537Ω
V 20	5U4G	INF	23KΩ	INF	88.2Ω	INF	90.5Ω	INF	23KΩ	
V 21	17HP4	0Ω	1 Meg	Pin 6 16KΩ	Pin 10 #2.2Meg	Pin 11 300KΩ	Pin 12 .1Ω			

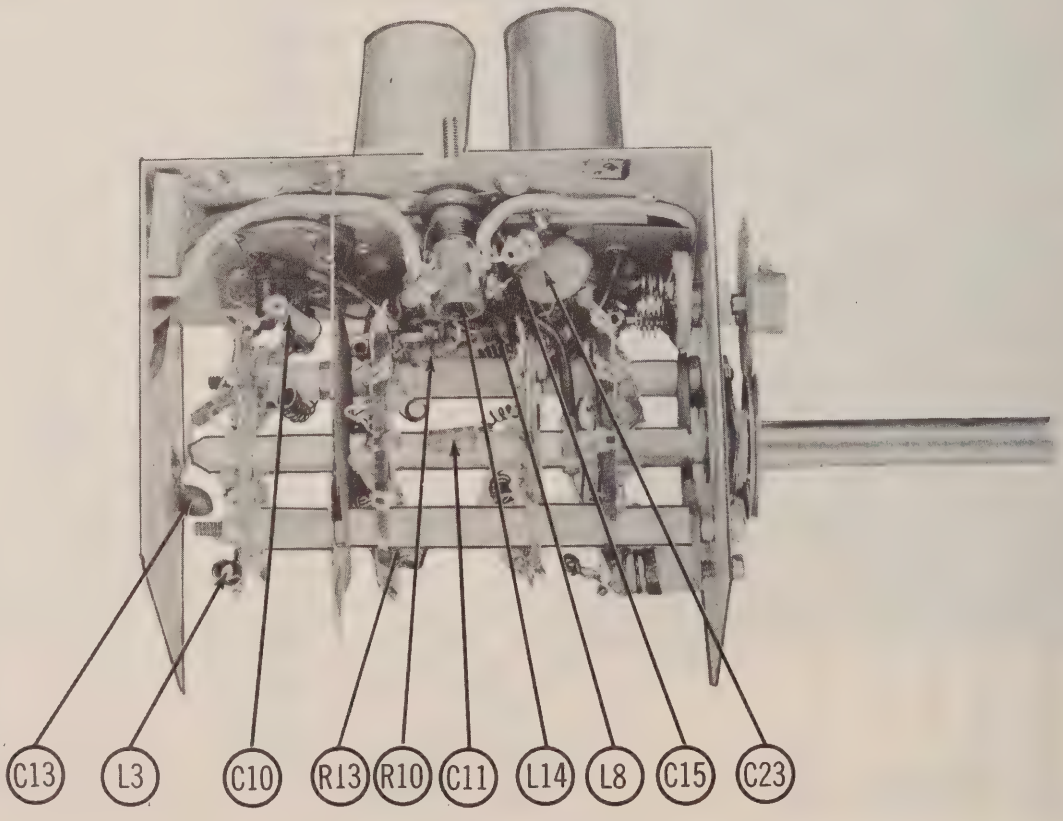
† MEASURED FROM PIN #8 OF V20
# MEASURED FROM PIN #3 OF V18



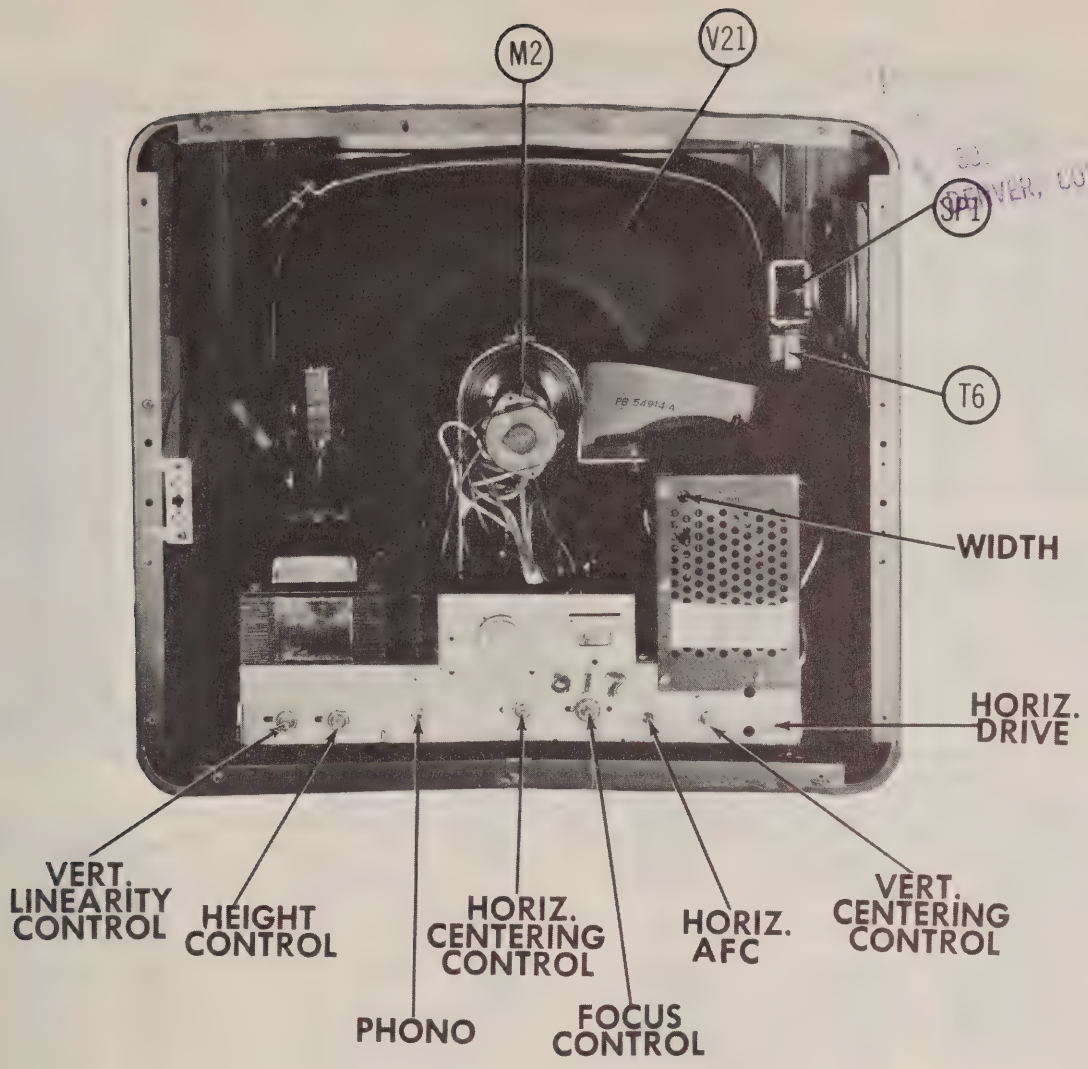
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control to the center of its range and adjust the horizontal AFC slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) in a counter clockwise direction as far as possible without the presence of vertical white lines or compression of the center of the picture.

Adjust the width slug (B3) for a picture slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

1 Remove 5 push on type control knobs from front panel.

2 Remove 14 metal screws. Remove rear cover.

3 Remove 2 metal screws. Remove antenna bracket.

4 Disconnect speaker. Remove 2 nuts. Remove speaker.

5 Remove 4 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CBS Columbia PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6HC5	6BC5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Detector	6AL5	6AL5	6BT	
V7	Video Amplifier-Video Output	12BH7	12BH7	9A	
V8	Sound IF Amp	6AU6	6AU6	7BK	
V9	Ratio Detector	6AL5	6AL5	6BT	
V10	AF Amplifier	6BQ7	6BQ7		
V11	Audio Output	6V6GT	6V6GT	7AC	
V12	Sync Amplifier -Sync Phase Inv.	12BH7	12BH7	9A	
V13	Sync Separator	12BE7	12BE7	9AJ	
V14	Vert. Oscillator-Vert. Output	12BH7	12BH7	9A	
V15	Horiz. AFC	6AL5	6AL5	6BT	
V16	Horiz. Mult.	12BH7	12BH7	9A	
V17	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V18	Damper	6W4GT	6W4GT	4CG	
V19	HV Rectifier	1AX2	1AX2		
V20	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: CBS-Columbia PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RMA BASE TYPE	NOTES
V21A	17HP4	17HP4	12C	① Circuit changes necessary
		17RP4	12C	
B	20HP4	20HP4	12C	
		20HP4A ①	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CBS-Columbia PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	450	A20144	PRS450/40-40		UPT4445		FP447	TVA-2740	Red
B	40	450		PRS450/20-20		BRD2245			TVA-2722	Blue
C	20	450								Orange
D	20	450								Green
C2A	10	450	A20135	AFE3-31		UPU1445		4N727	TVL-3776	Red
B	10	450								Yellow
C	10	450								Blue
C3	10	250	A20145	PRS250/12		BR1235A		TC52	TVA-1504	
C4	100	25	A20130	PRS25/100		BHR251A		TC2501	TVA-1207	
C5	10	25	A20137	PRS25/10		BR102A		TC22	TVA-1204	
C6	25	12	A20147	PRS25/25		BR252A		TC26	TVA-1205	
C7	1	50	A20138	E2E7.5		BBR-1-50T		TC31	TVA-1300	
C8	1	50	A20136	E2E7.5		BBR-1-50T		TC31	TVA-1500	
C9	15		A556-203	SII5	D6-150		GP1K-150	UC-5415	5GA-Q15	
C10	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C11	470		A191-39	SE470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C12	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C13	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C14	.8									
C15	1.8									
C16	1.5			SII.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515	5TCCB-V15	
C17	470		A191-39	SE470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C18	.39									
C19	10			SII0N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C20	13				TCZ-13		NP0K-130			
C21	4						N330K-040			
C22	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C23	15		A556-203	SII5	D6-150		GP1K-150	UC-5415	5GA-Q15	
C24	5000		A19109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C25	270	500	A190-133				NP0K-SR8		5TCCB-V68	
C26	6.8		A19177	SII.5NP0	TCZ-6.8					
C27	100	500		A469-0001		5R5T1		MCB235	MS-31	Note 1
C28A	1500	}	A19147	BPD-2X0015	DD-2-152	TM5D15	812-0015	DCD-5215	5HK-2D15	
B	1500	}								
C29	680	500	A556-234							
C30	5000		A19109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C31	270	500	A190-133							
C32	1500		A19148	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C33	5000		A19109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	5000		A19109	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C35	270	500	A190-133							
C36	510		A556-233							
C37A	4700	}	A19163	BPD-005	DD-2-502	TM5D5	811-005	DC-525	5HK-2D47	
B	4700	}		BPD-005		TM5D5	811-005	DC-525		
C38	22	500	A190-107	A469-000025		5R5Q25			MS-425	
C39	5000		A19109	BPD-005	DD-502	TM5T5	811-005	DC-525	5HK-D5	
C40	10		A555-101	SII0	D6-100	5W5Q1	GP1K-100	UC-541	5GA-Q1	
C41	1000		A555-136	SII000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C42	1000	600	A194-160	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C43	1000		A155-136	SII000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C44	47		A555-113	SI47NP0	TCZ-47		NP0L-470	ZT-5447	5TCC-Q47	
C45	.05	500	A194-160	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C46	5		A555-100	SII5	TCZ-4.7		GP1K-050	ZT-555	5GA-Q5	
C47	47		A555-113	SI47NP0	TCZ-47		NP0L-470	ZT-5447	5TCC-Q47	
C48	47		A555-113	SI47NP0	TCZ-47		NP0L-470	ZT-5447	5TCC-Q47	
C49	1500		A19148	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C50	.005	600	A194-151	P688-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C51	1000		A556-236	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C52	.05	600	A194-160	P688-05	DF-503	PTE5S5		PT615	6TM-S5	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CBS-Columbia PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C53	.02	600	A194-156	P688-02	DF-303	PTE5S2		PT623	6TM-S3	
C54	.001	600	A194-145	P688-001	D6-102	PTE5D1	GP2L-102	PT621	6TM-D1	
C55	.05	600	A194-160	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C56	.01	600	A194-155	P688-01	D6-103	PTE5S1	GP2-333-103	PT611	6TM-S1	
C57	.005	600	A194-151	P688-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C58	.02	600	A190-156	P688-02	DF-203	PTE5S2		PT612	6TM-S2	
C59	390	500	A190-137	1469-0004		5R5T4		MCB243	MS-34	
C60	270	500	A190-133	1469-0003		5R5T3		MCB241	MS-33	
C61	.01	600	A194-155	P688-01	D6-103	PTE5S1	GP2-333-103	PT611	6TM-S1	
C62	.01	600	A194-155	P688-01	D6-103	PTE5S1	GP2-333-103	PT611	6TM-S1	
C63	.005	600	A194-151	P688-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C64	.01	600	A194-155	P688-01	D6-103	PTE5S1	GP2-333-103	PT611	6TM-S1	
C65	.005	500	A194-151	P686-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C66	4700	500	A194-163	1464-005		1DR5D5		MCB465	MS-35	
C67	.035	600	A194-159							Note 3
C68	.02	600	A194-156	P686-02	DF-303	PTE5S2		PT623	6TM-S3	
C69	.05	600	A194-160	P686-05	DF-503	PTE5S5		PT615	6TM-S5	
C70	.01	600	A194-155	P688-01	D6-103	PTE5S1	GP2-333-103	PT611	6TM-S1	
C71	.05	600	A194-160	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C72	.05	600	A194-160	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C73	.001	600	A194-145	P688-001	D6-102	PTE5D1	GP2L-102	PT621	6TM-D1	
C74	.001	600	A194-145	P686-001	D6-102	PTE5D1	GP2L-102	PT621	6TM-D1	
C75	.005	600	A194-151	P688-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C76	.005	600	A194-151	P688-005	D6-502	PTE5D5	GP2-333-502	PT625	6TM-D5	
C77	.05	600	A194-160	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C78	3900	500	A195-261	1464-004		1DR5D4		MCB463	MS-34	
C79	390	500	A190-137	1469-0004		5R5T4		MCB243	MS-34	
C80	390	500	A190-137	1469-0004		5R5T4		MCB243	MS-34	
C81	270	500	A190-133	1469-0003		5R5T3		MCB241	MS-33	
C82	20	1500	A19172							Note 2
C83	10	2500	A19146					MCP410		
C84	.05	600	A194-160	P688-05	DF-503	PTE5S5		PT615	6TM-S5	
C85	.1	600	A194-162	P688-1		PTE6P1		PT601	6TM-P1	
C86	.05	600	A194-160	P688-05		PTE5S5		PT615	6TM-S5	
C87	510	20000	HV20C	HV20C	TV3-502	MM-C30T5	413-501		30DK-T5	
C88	220	1000	A19180					MCK322		
C89	.01	600	A19106	689ZGXY-01		PJS81		PT611	6TM-S1	
C90	.01	600	A19106	689ZGXY-01		PJS81		PT611	6TM-S1	

Note 1. Some Models use 82MMF in this application.
Note 2. Chassis designated 820 use 10MMF in this application (Part #A19146)
Note 3. Chassis using Vert. Output Trans. part #1015-4 use .05MFD in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CBS-Columbia PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	5000Ω	½	A24142	QJ-363 *	RTV-381		UF53R	Contrast-Panel
B	250KΩ	2					UK254A	Volume-Rear
C	Switch						UR-26	Attach to R1B
R2A	100KΩ	½	A24110	Q11-128	AG-48-8	AB-40	SU-41	Brightness
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R2A
R3A	5000Ω	½	A24143	Q11-116	AG-1B-B	AB-10	SU-14	Horiz. Hold-Note
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R3A
R4A	1 Meg	½	A24112	Q11-137	AG-8I-S	AB-69	SU-54	Focus
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	3000Ω	½	A24114		AG-15-S		U-8	Vert. Linearity
B	Shaft		Not Req.		FKS-1/4		Not Req.	Attach to R6A
R7A	5 Meg	½	A24111	Q11-144	AG-8S-S	AB-87	SU-87	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	100Ω	2	A24118	W-100	A43-100	VK-121	R100L	Horiz. Centering-Wire Wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R8A
R9	20Ω	2	A24118	W20X10	RTV-98	5VT-901	R20C7	Vert. Centering-Tap ② 10Ω-Wire Wound

* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B17-114 & P1-106 (Panel)
B13-130 & R1-126 (Rear) & SWITCH 76-1
Note. Chassis designated 817-1 & 820-1 horiz. hold is omitted.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CBS-Columbia PART No.	IRC PART No.	NOTES
R10	4700Ω	½	A231-1165	BTS-4700	
R11	150KΩ	1	A231-2277	BTS-150K	
R12	2200Ω	1	A231-1157	BTS-2200	
R13	220KΩ	½	A231-1205		
R14	15KΩ	½	A231-2277	BTS-15K	
R15	10KΩ	½	A231-1173	BTS-10K	
R16	3900Ω	½	A231-1163	BTS-3900	
R17	33Ω	½	A231-1113		
R18	82Ω	½	A231-1123	BTS-82	
R19	330Ω	½	A231-1137	BTS-330	
R20	47KΩ	½	A231-1189		
R21	47Ω	½	A231-1117		
R22	220Ω	½	A231-1133	BTS-220	
R23	8200Ω	½	A231-1171		
R24	150Ω	½	A231-1129	BTS-150	
R25	220Ω	½	A231-1133	BTS-220	
R26	100KΩ	½	A231-1197	BTS-100K	
R27	15KΩ	½	A231-1177	BTS-15K	
R28	4700Ω	½	A231-1165	BTS-4700	
R29	82Ω	½	A231-1123		
R30	220Ω	½	A231-1133	BTS-220	
R31	4700Ω	½	A231-1165	BTS-4700	
R32	3300Ω	1	A232-1161	BTA-3300	
R33	1 Meg	½	A231-1221	BTS-1 Meg	
R34	150Ω	½	A231-1129	BTS-150	
R35	120Ω	½	A231-1127	BTS-120	
R36	11KΩ-5%	2	A233-74	BTB-11K-5%	
R37	18KΩ	2	A233-1179	BTB-18K	
R38	270KΩ	½	A231-1207	BTS-270K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CBS-Columbia PART No.	IRC PART No.	NOTES
R39	1 Meg	½	A231-1221	BTS-1 Meg	
R40	100KΩ	½	A231-1197	BTS-100K	
R41	100KΩ	½	A231-1197	BTS-100K	
R42	1800Ω	½	A231-1155	BTS-1800	
R43	47KΩ	½	A231-1189	BTS-47K	
R44	10 Meg	½	A231-1245	BTS-10 Meg	
R45	470KΩ	½	A231-1213	BTS-470K	
R46	470KΩ	½	A231-1213	BTS-470K	
R47	330Ω	1	A232-1157	BTA-330	
R48	3250Ω	7	A23134-4	1 3/4A-3500	
R49	27KΩ	½	A231-1183	BTS-27K	
R50	68KΩ	½	A231-1193	BTS-68K	
R51	12KΩ	½	A231-1175	BTS-12K	
R52	470KΩ	½	A231-1213	BTS-470K	
R53	2.2Meg	½	A231-1229	BTS-2.2Meg	
R54	2.2Meg	½	A231-1229	BTS-2.2Meg	
R55	820Ω	½	A231-1171	BTS-8200	
R56	22KΩ	½	A231-1181	BTS-22K	
R57	1 Meg	½	A231-1221	BTS-1 Meg	
R58	22KΩ	½	A231-1181	BTS-22K	
R59	1 Meg	½	A231-1221	BTS-1 Meg	
R60	2700Ω	½	A231-1159	BTS-2700	
R61	3900Ω	½	A231-1163	BTS-3900	
R62	3900Ω	½	A231-1163	BTS-3900	
R63	22KΩ	½	A231-1181	BTS-22K	
R64	22KΩ	½	A231-1181	BTS-22K	
R65	8200Ω	½	A231-1171	BTS-8200	
R66	47KΩ	½	A231-1189	BTS-47K	
R67	1.8Meg 5%	1	A232-1237	BTA-1.8Meg 5%	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CBS-Columbia PART No.	IRC PART No.	NOTES
R68	6800Ω	½	A231-1185	BTS-6800	
R69	470KΩ	½	A231-1213	BTS-470K	
R70	47KΩ	½	A231-1189	BTS-47K	
R71	1.5Meg	½	A231-1225	BTS-1.5Meg	
R72	1800Ω	½	A231-1155	BTS-1800	
R73	47KΩ	½	A231-1189	BTA-47K	
R74	150KΩ	½	A231-1201	BTA-150K	
R75	3300Ω	2	A233-1161	BTB-3300	
R76	3300Ω	2	A233-1161	BTB-3300	
R77	2.2Meg	1	A232-1229	BTA-2.2Meg	
R78	33KΩ	½	A231-1185	BTS-33K	
R79	100KΩ	½	A231-1197	BTS-100K	
R80	100KΩ	½	A231-1197	BTS-100K	
R81	3.3Meg	½	A231-1233	BTS-3.3Meg	
R82	470KΩ	3	A231-1213	BTS-470K	
R83	22KΩ	1	A232-1181	BTA-22K	
R84	5600Ω	3	A231-1167	BTS-5600	

In chassis designated 817-1 & 820-1 R88 is omitted.
In chassis using vert. output trans. part no. 1015-4, R68 is 3900Ω,
R67 may be 1.5Meg, R72 may be 1000Ω, R66 may be omitted.
When V19 is 1X2A, R92 is 2.6Ω.
Note 1. Some models use a .56Ω resistor in this application.

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CBS-Columbia PART No.	IRC PART No.	NOTES
R85	1800Ω	½	A231-1155	BTS-1800	
R86	100KΩ	½	A231-1197	BTS-100K	
R87	220KΩ	½	A231-1205	BTS-220K	
R88	270KΩ	½	A231-1207	BTS-270K	
R89	470KΩ	½	A231-1213	BTS-470K	
R90	82Ω	½	A231-1123		
R91	220Ω	2	A233-1133	BW-2-220	
R92	.51Ω	½			Note 1
R93	1 Meg	2	A233-2321		
R94	15KΩ	1	A232-1177	BTA-15K	
R95	2250Ω	15	A2134-16	2D-2250	
R96	4700Ω	2	A233-1165	BTL-4700	
R97	6800Ω	2	A233-1169	BTB-6800	
R98	1.3Ω	1	A23151		
R99	80Ω	10	A23134-2		
R100	10KΩ	½	A231-1173	BTS-10K	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: CBS-Columbia PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC 60 1.9A	630VCT .230ADC	5VAC ⑪ 3A	6.3VAC ⑤ 1.2A	A-10109	P-8171	P-3089		R-49BS
				Sec. 4 6.3VAC ⑤ 9A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: CBS-Columbia PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	160Ω	950Ω	B-10106 A-10106 ①	A-8111	A-3000	TBO-1 ②	A-97X ③	Vert. osc. trans
T3	510Ω top ⑤ 60Ω	18Ω top ④ 12Ω Sec #2 3.15Ω top ⑤ .13Ω Sec #3 0Ω	A-10136	A-8130⑮⑤	EVO-7 ⑥	TFB-5⑥⑦	D-14⑬⑭	Horiz. output trans.
T4	2KΩ	5.5Ω	A-10152-1				A-105X	Vert. output trans
T5A	12Ω		A-26322-1	DY-8A	MDF-70	TY-2	Y-12	Horiz. deflection coils
B	53Ω		A-26278-3 ⑦					Vert. deflection coils

① Alternate vert. osc. trans.
② Mount on top of chassis
③ Drill one new mounting hole
④ Drill new mounting holes
⑤ Use with width coil WC-11
⑥ Use with width coil MWC-1
⑦ Use width coil (with AGC Winding) with approx. 4-29 milliHenry range
⑧ Use with width coil WC-11
⑨ Alternate deflection yoke

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CBS-Columbia PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	4.8KΩ	3.15Ω	382Ω	.63Ω	38G53	A-3677 ①	A-3930 ①	RO-8 ①	S-3X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: CBS-Columbia PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3.15Ω	A5866 A58124 ①	St-105 Mod. P5-X	5A07	① Alternate speaker used in model 17C18

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D. C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT 1000 ⁻½	REPLACEMENT DATA: CBS-Columbia PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.230A	61Ω	1.83HY	A-1406	C-2326 ①	C-2996 ①	TH-1733 ①	C-21X

① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

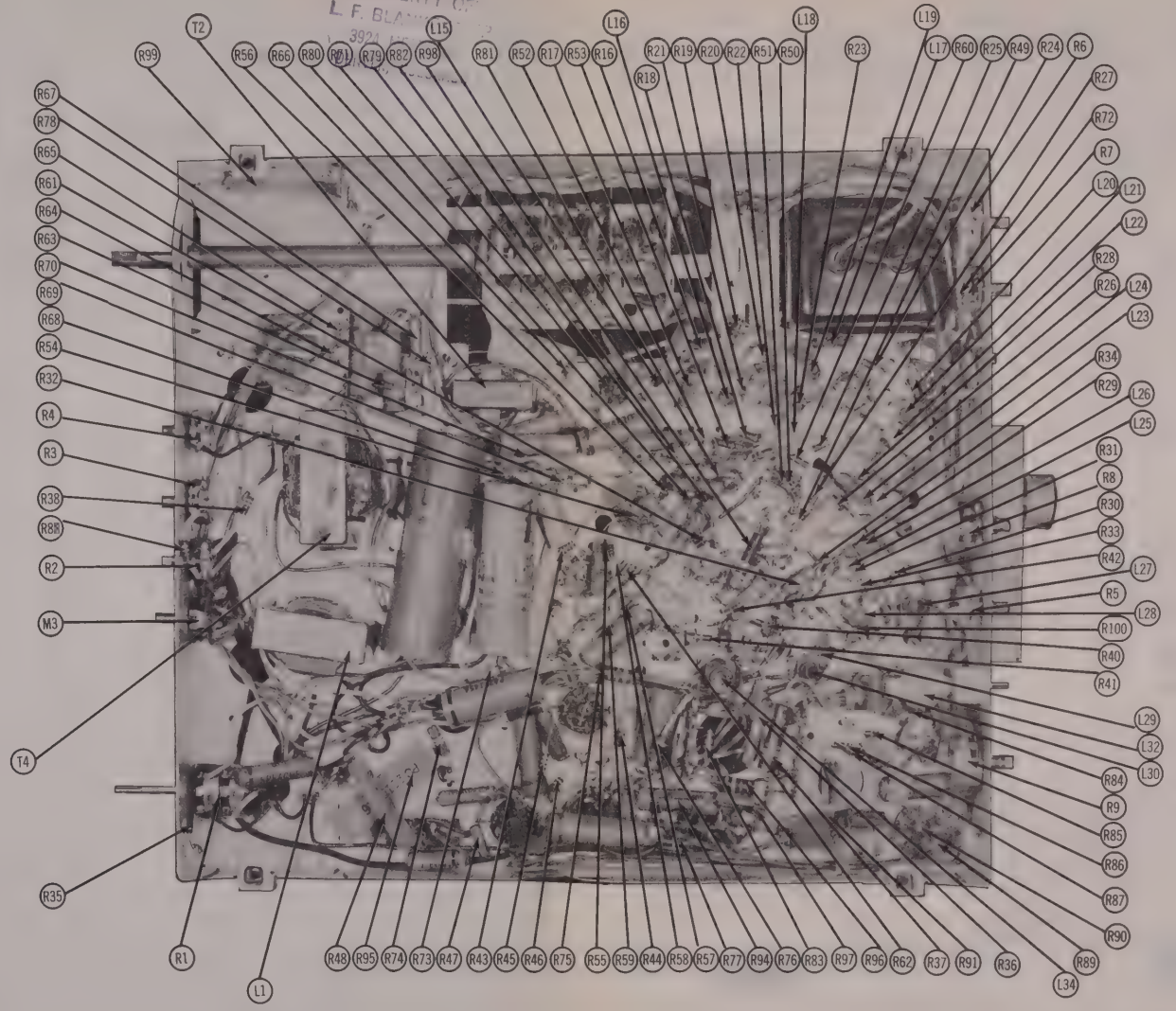
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	CBS-Columbia PART No.	MERIT PART No.	IRC PART No.	
L2	Ant. Trans.	0Ω	0Ω	A28280-24			
L3	Ant. Coils	0Ω					
L4	Ant. Shunt Coils	0Ω					
L5	Ant. Coil	0Ω		A28830-20			Channel 13.
L6	RF Coil	0Ω		A28280-21			Channel 13.
L7	RF Coils	0Ω					
L8	Mixer Grid Coil	0Ω					Channel 13.
L9	Mixer Grid Coils	0Ω					
L10	Osc. Coil	0Ω		A28280-22			Channel 13.
L11	Osc. Coils	0Ω					
L12	Fil. Choke	0Ω		A28280-23			
L13	RF Choke	1.2Ω					
L14	1st Video IF	.6Ω		A28280-19	TV-103■		
L15	21.25MC Trap	0Ω		A28314			
L16	2nd Video IF	.2Ω		A3392	TV-102■		
L17	Fil. Choke	.27Ω		A28276		CL-1	.82 Microhenries.
L18	RF Choke	2.7Ω		A28253			
L19	3rd Video IF	.2Ω		A3392	TV-103■		
L20	Fil. Choke	.27Ω		A28276		CL-1	.82 Microhenries.
L21	4th Video IF	.2Ω		A3392	TV-102■		
L22	Cathode Choke	2.7Ω		A28253			
L23	Series Peaking Coil	6.5Ω		A28255-2	TV-184		194 Microhenries.
L24	Shunt Peaking Coil	7.5Ω		A28255-1	TV-181		130 Microhenries.
L25	Series Peaking Coil	6.5Ω		A28255-2	TV-184		194 Microhenries
L26	Shunt Peaking Coil	7.5Ω		A28255-1	TV-181		130 Microhenries.
L27	4.5MC Trap	2.6Ω		A28286	TV-151■		
L28	Series Peaking Coil	7.5Ω		A28255-1	TV-181		130 Microhenries.
L29	Shunt Peaking Coil	9.5Ω		A28255-4			314 Microhenries.
L30	Sound IF	2.6Ω		A28286	TV-151■		
L31	Ratio Det.	5.5Ω	2ΩCT	A1201*	TV-115		Tertiary Winding - .5Ω
L32	Horiz. Osc.	60Ω		A28263	TV-163		
L33	Width Coil	1Ω		A28279-1	MWC-2■		
L34	Hor. Lin.	27Ω		A28292	MWC-1■		

* Alternate Part No. 1202.
■ Enlarge mounting hole.

MISCELLANEOUS

ITEM No.	PART NAME	CBS-Columbia PART No.	NOTES
M1	RF Tuner	T2306	
M2	Ion Trap	A3206	
M3	Switch	A37105	Phono - TV
B2	Trimmer	A1772	Horiz. Drive(25-280MMF)
	Cabinet	A60168-1	Model 17T18
	Cabinet	A60165-1	Model 17M18
	Cabinet	A60170-1	Model 17C18
	Cabinet	A60169-1	Model 20T18
	Trap Door Cover	A4497	
	Trap Door Cover	A4498	
	Safety Glass	A62290	Model 17T18
	Safety Glass	A62327	Model 17M18
	Safety Glass	A62368	Model 17C18
	Safety Glass	A62353	Model 20T18
	Mask	A62367-1	Model 17T18
	Mask	A62366-3	Model 17C18
	Mask	A62408-3	Model 20T18
	Back Cover	A62354	Model 17T18
	Back Cover	A62329	Model 17M18
	Back Cover	A62429	Model 17C18
	Back Cover	A62375	Model 20T18
	Knob	A39242-1	Channel Selector
	Knob	A39240-3	Fine Tuning
	Knob	A39241-1	Off/on Volume
	Knob	A39239-3	Picture Control
	Knob	A39249	Phono-TV Switch



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

HALLICRAFTERS MODELS 1010P, 1012P, 1013C, 1021P, 1022C, 1026P, 1027C, 1111P, 1113P

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HALLICRAFTERS MODELS 1010P, 1012P, 1013C, 1021P, 1022C, 1026P, 1027C, 1111P, 1113P

HALLICRAFTERS MODEL 1010P

TRADE NAME	Hallicrafters Models 1010P, 1012P (Ch. A1200D, K1200D or W1200D) 1013C (Ch. F1200D), 1021P, 1026P (Ch. D1200D, L1200D or X1200D), 1022C, 1027C (Ch. G1200D), 1111P, (Ch. A1200D) 1113P (Ch. D1200D).
MANUFACTURER	Hallicrafters Co., 4401 W. 5 th. Ave., Chicago 24, Ill.,
TYPE SET	Television Receiver
TUBES	Eighteen
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

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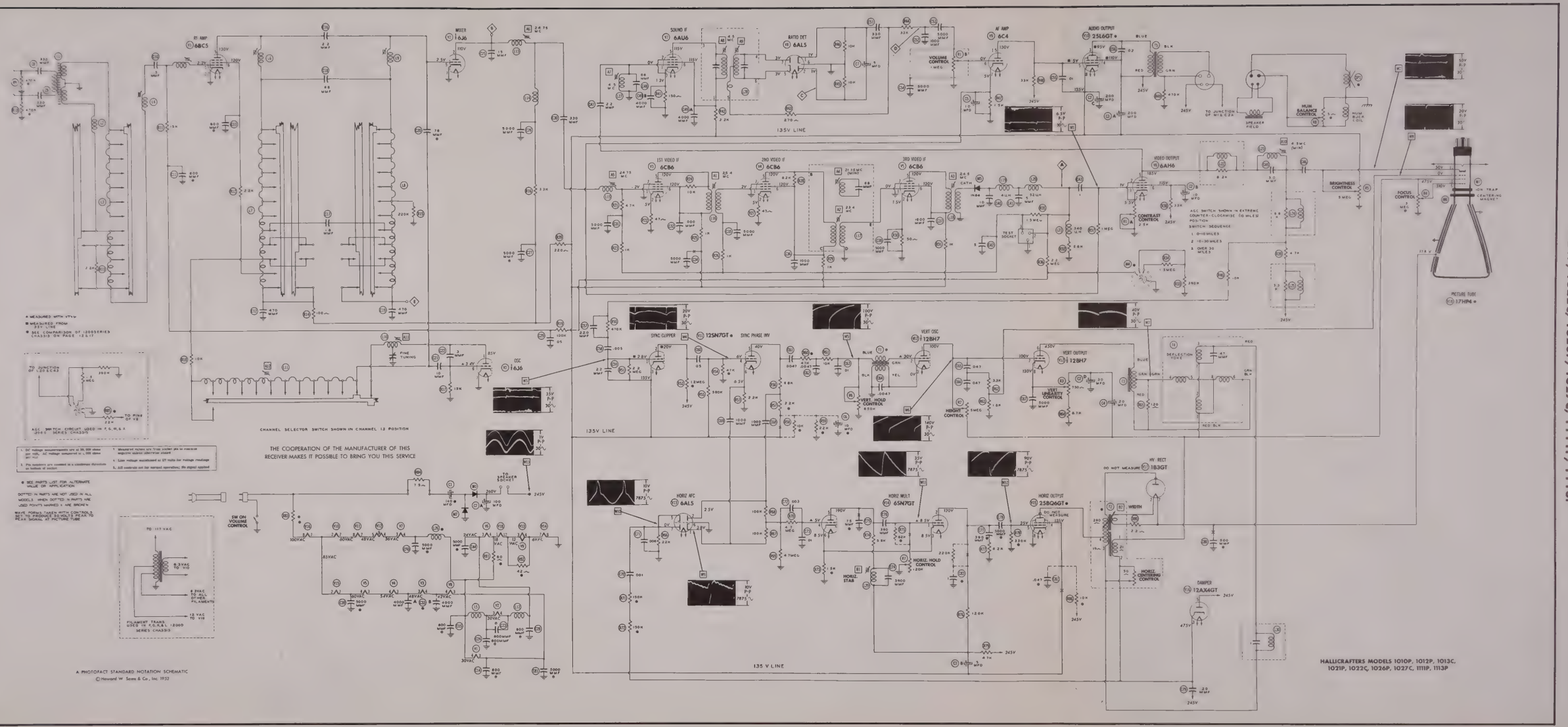
HALLICRAFTERS MODELS 1010P, 1012P, 1013C,
1021P, 1022C, 1026P, 1027C, 1111P, 1113P
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
135V LINE
135 V LINE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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CHASSIS TOP VIEW

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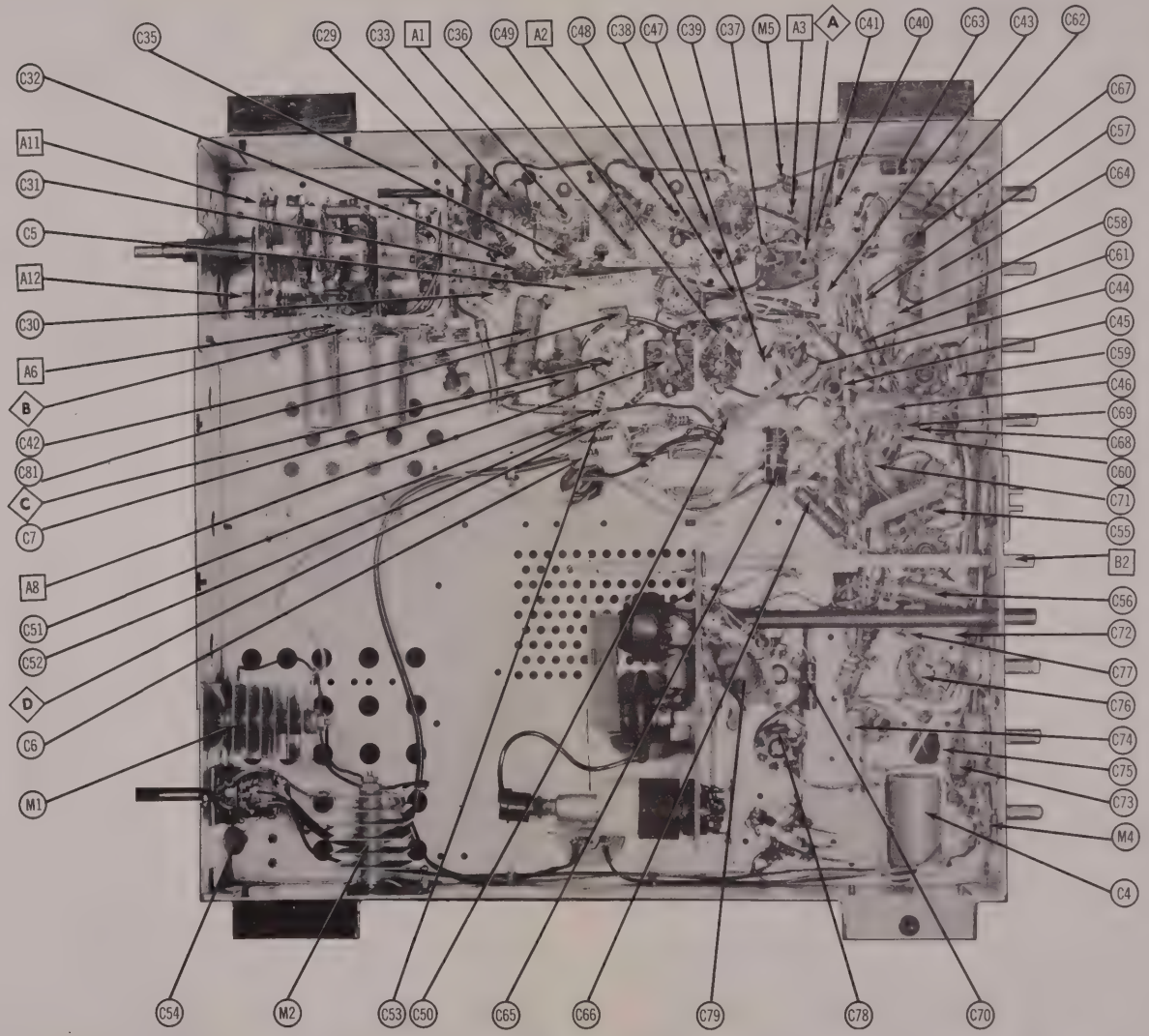
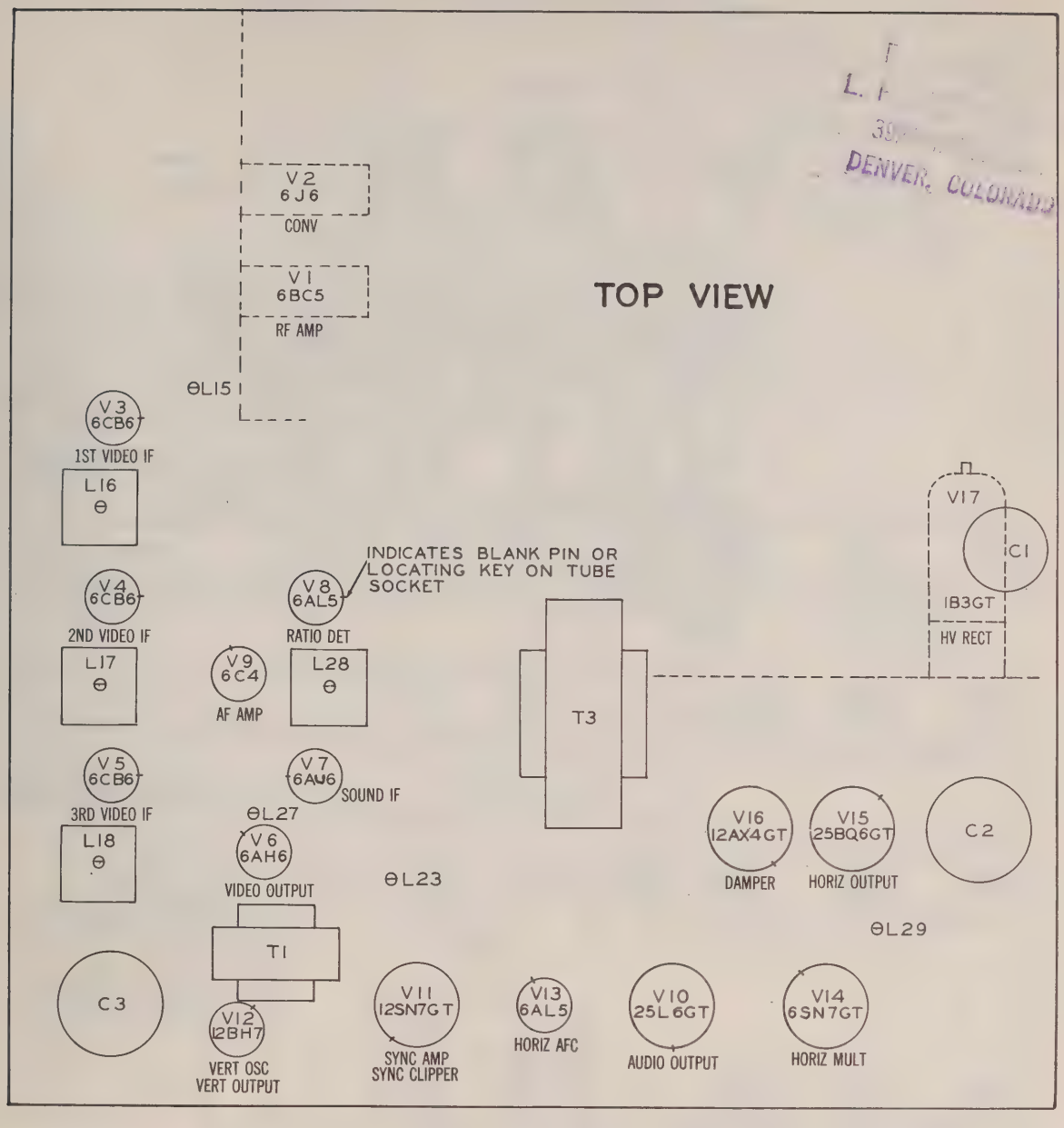


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-Selenium Rectifiers (M1, M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster, -V2, V3, V4, V5, V6, V10
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V6, V18
Has pic, no sound-V7, V8, V 9, V10

SYNC FAILURE
No vert. sync-V11, V12
No horiz. sync-V11, V13, V14
No vert. or horiz. sync. -V11

SWEEP FAILURE
No raster, has sound-V14, V15, V16, V17, V18
No vertical deflection-V12
Poor vert. linearity or foldover-V12
Poor horiz. linearity or foldover-V14, V15, V16
Narrow picture-V14, V15, V16, V17, M1, M2
Vert. off freq. -V11, V12
Horiz. off freq. -V11, V13, V14

NOTE: Since this receiver employs tubes used in a series-parallel filament network, an open filament in any tube in series may cause the set to be inoperative.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.
Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indication.
Connect the negative side of a 3 volt battery to the ungrounded side of C42. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.4MC	Any	DC probe to point ◇A◇ Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.4MC	"	"	A2	"
3.	"	"	24.5MC	"	"	A3	"
4.	"	"	21.75MC	"	"	A4	Adjust for MINIMUM deflection.
5.	"	"	23.4MC	"	"	A2	Adjust for maximum deflection.
6.	"	"	24.75MC	"	"	A5	Connect 470Ω and .01MFD in series from point ◇B◇ to chassis. Adjust A5 for maximum deflection.
7.	"	"	24.75MC	"	"	A6	Connect .470Ω and .01 MFD in series from pin 1 (grid) of 6CB6 (V3) to chassis. Adjust A6 for maximum deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.75MC 26.25MC	Any	Vert. Amp. thru 10KΩ to point ◇A◇.		Check for response curve similar to fig. 1. If necessary retouch A1, A2, A3, A5 and A6 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.005MFD	High side to point ◇A◇ Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point ◇C◇ Common to chassis.	A7, A8	Adjust for maximum deflection.
10.	"	"	"	"	DC probe to point ◇D◇ Common to chassis.	A9	Adjust for zero reading. A positive and negative read- will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.005MFD	High side to point ◇A◇. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point ◇C◇. Low side to chassis.	A7, A8	Disconnect stabilizer capacitor C7. Adjust for curve of maximum amplitude and symmetry as in fig. 2.
10.	"	"	"	"	"	Vert. Amp. to point ◇D◇. Low side to chassis.	A9	Reconnect capacitor C7. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	.005MFD	High side to point ◇A◇ Low side to chassis.	4.5MC (Unmod)	Any	DC probe thru detector (fig. 4) to pin 11 of picture tube. Common to chassis.	A10	Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Direct	Across antenna terminals	213MC (10MC Swp)	215.75MC	13	Vert. Amp. thru 10KΩ to point ◇A◇. Low side to chassis.	A11	Adjust to place sound marker in sound trap notch as in fig. 5.
13.	"	"	85MC (10MC Swp)	87.75MC	6	"	A12	"

THE RF AND MIXER PORTION OF THIS TUNER HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS PORTION SHOULD NOT BE REQUIRED IN THE FIELD.

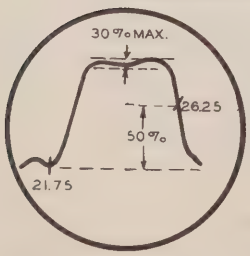


FIG. 1

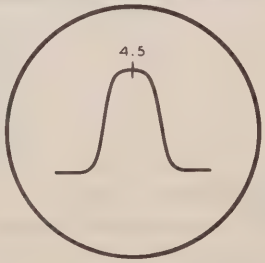


FIG. 2

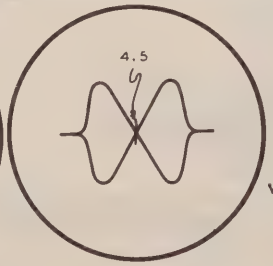


FIG. 3

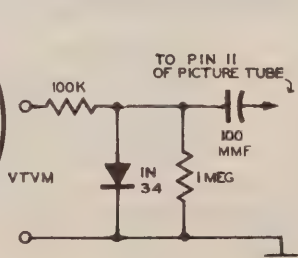


FIG. 4

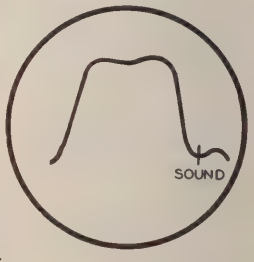
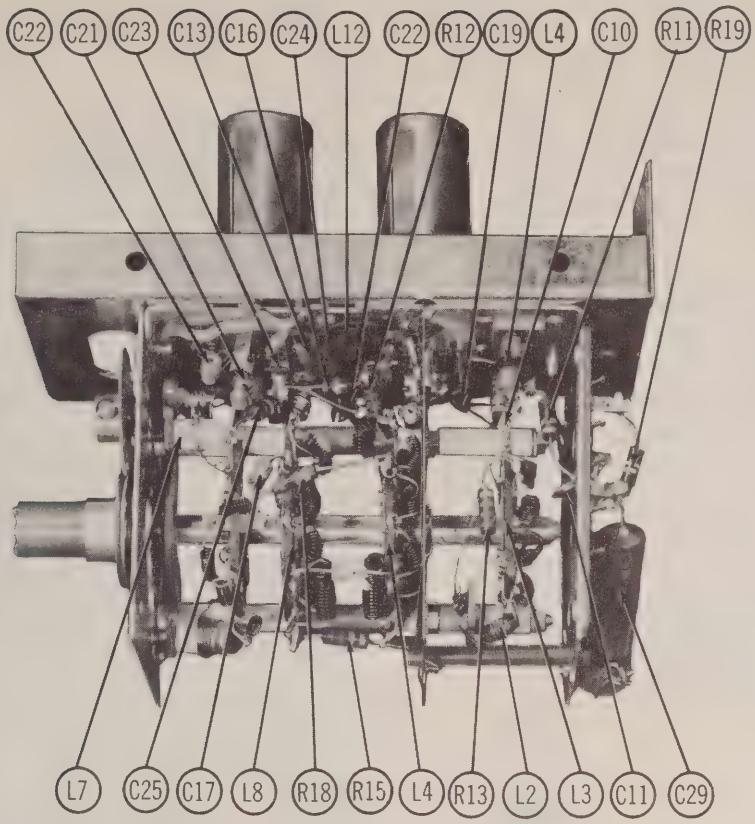
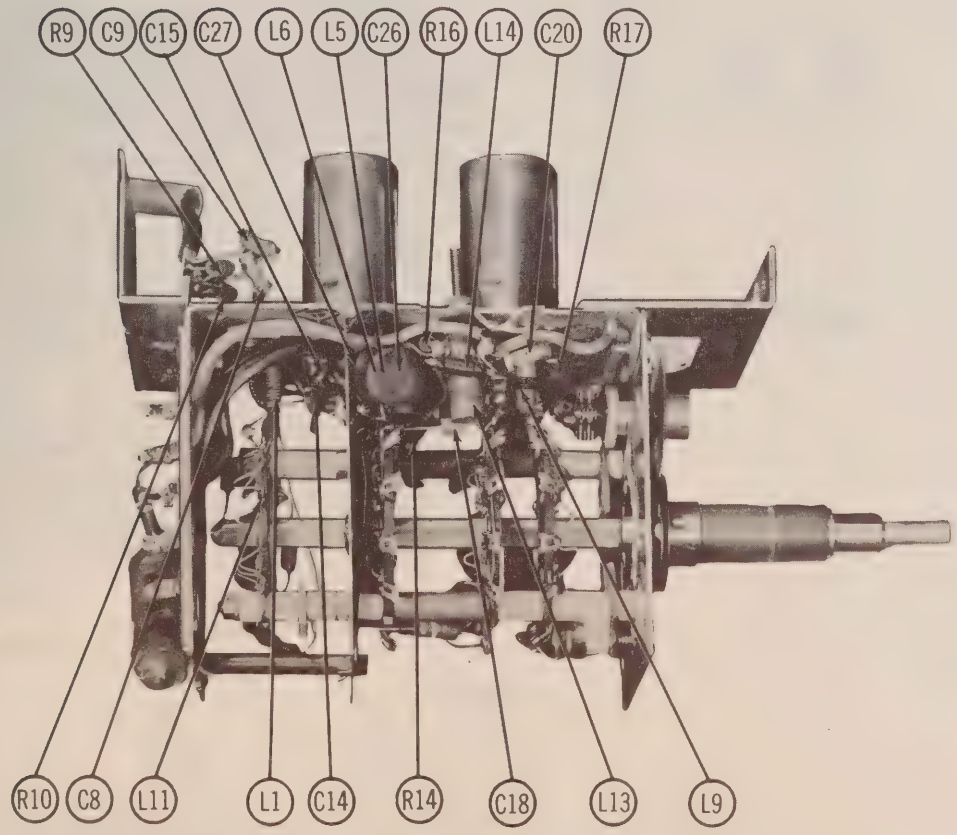


FIG. 5



RF TUNER-RIGHT SIDE

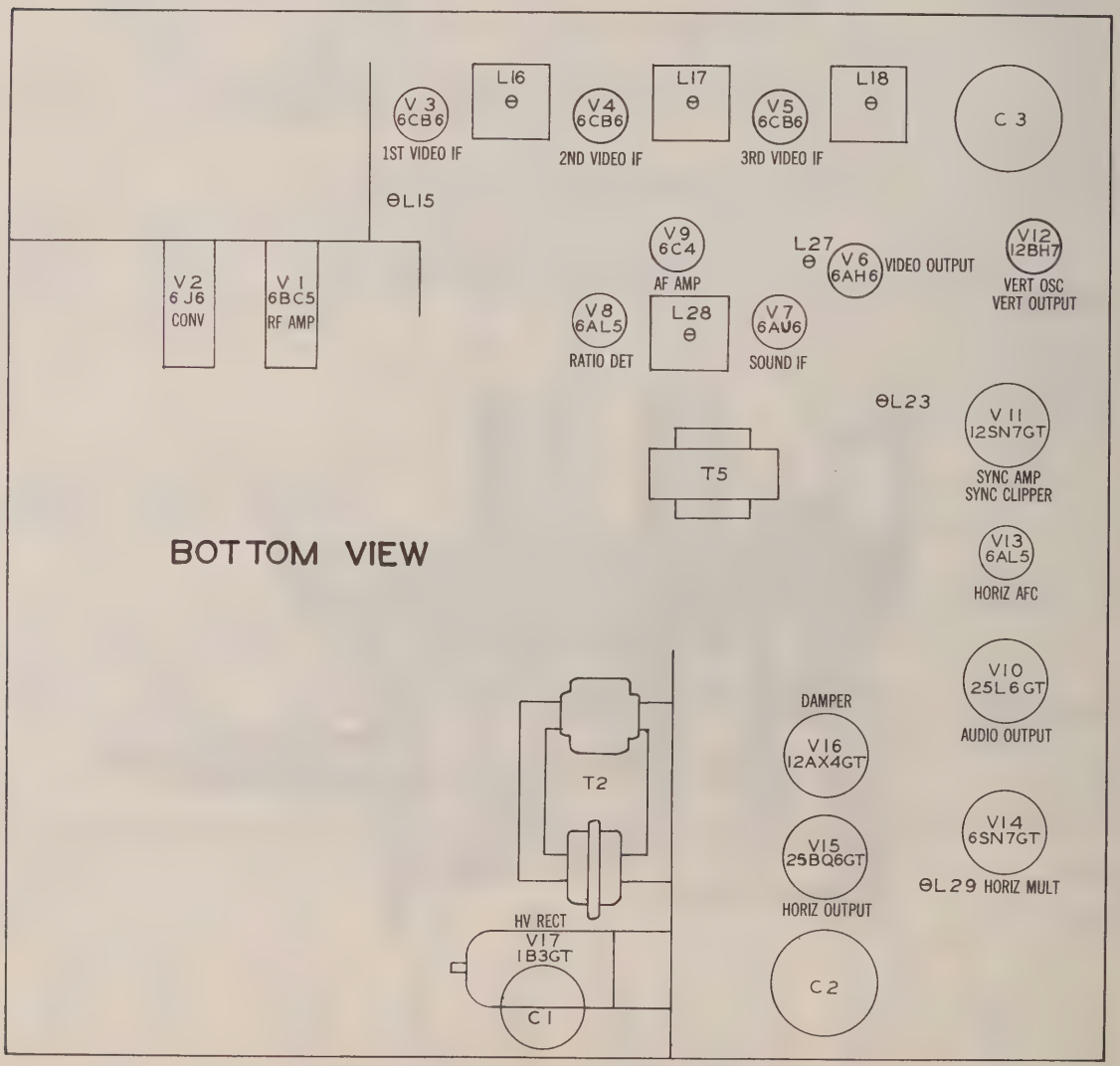


RF TUNER-LEFT SIDE

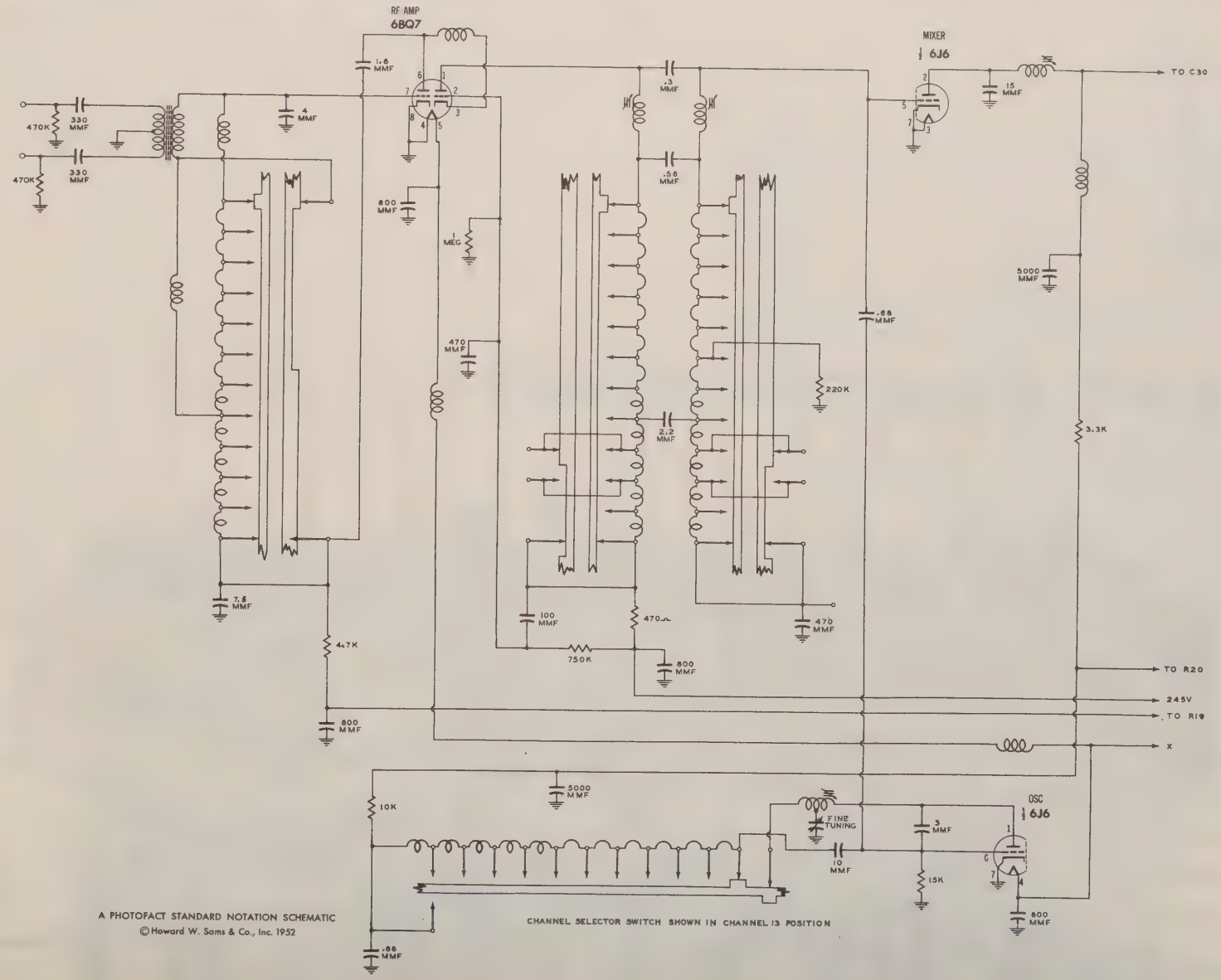
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	2.3Meg	0Ω	13.8Ω	10.5Ω	■320Ω	■2.5KΩ	0Ω		
V 2	6J6	■10KΩ	■3.5KΩ	10.5Ω	9.2Ω	220KΩ	15KΩ	0Ω		
V 3	6CB6	1.5Meg	47Ω	19.8Ω	17.8Ω	■1KΩ	■1KΩ	0Ω		
V 4	6CB6	1.5Meg	47Ω	19.8Ω	21Ω	■1KΩ	■1KΩ	0Ω		
V 5	6CB6	.2Ω	150Ω	21Ω	23Ω	■1KΩ	■1KΩ	0Ω		
V 6	6AH6	1 Meg	290Ω	9.2Ω	6.5Ω	†4.8KΩ	†33KΩ	290Ω		
V 7	6AU6	1.2Ω	150Ω	14Ω	11.5Ω	■2.2KΩ	■2.2KΩ	150Ω		
V 8	6AL5	10KΩ	10KΩ	13.8Ω	17.8Ω	INF	0Ω	INF		
V 9	6C4	†33KΩ	INF	2.5Ω	4.8Ω	†33KΩ	80KΩ	1.5KΩ		
V 10	25L6GT	INF	26Ω	†287Ω	†87Ω	†33KΩ	4.7Meg	23Ω	25KΩ	
V 11	12SN7GT	■2.2Meg	†1.2Meg	■0Ω	47KΩ	■17KΩ	2.2KΩ	20Ω	23Ω	
V 12	12BH7	#2.7Meg	525KΩ	50Ω	14Ω	20Ω	#775Ω	#2.7Meg	9KΩ	17Ω
V 13	6AL5	4.8Meg	4.8Meg	4.8Ω	2.5Ω	22KΩ	0Ω	22KΩ		
V 14	6SN7GT	160KΩ	†125KΩ	1.5KΩ	9.4Meg	†10KΩ	1.5KΩ	2.5Ω	0Ω	
V 15	25BQ6GT	INF	26Ω	†125KΩ	■0Ω	330KΩ	22KΩ	23Ω	0Ω	Top Cap #30Ω
V 16	12AX4GT	INF	#20Ω	1.1Meg	INF	†87Ω	#300KΩ	26Ω	28Ω	
V 17	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								Top Cap #290Ω
V 18	17HP4	6.5Ω	1.8KΩ	Pin 6 #300KΩ	Pin 10 #18Ω	Pin 11 ■1 Meg	Pin 12 4.8Ω			

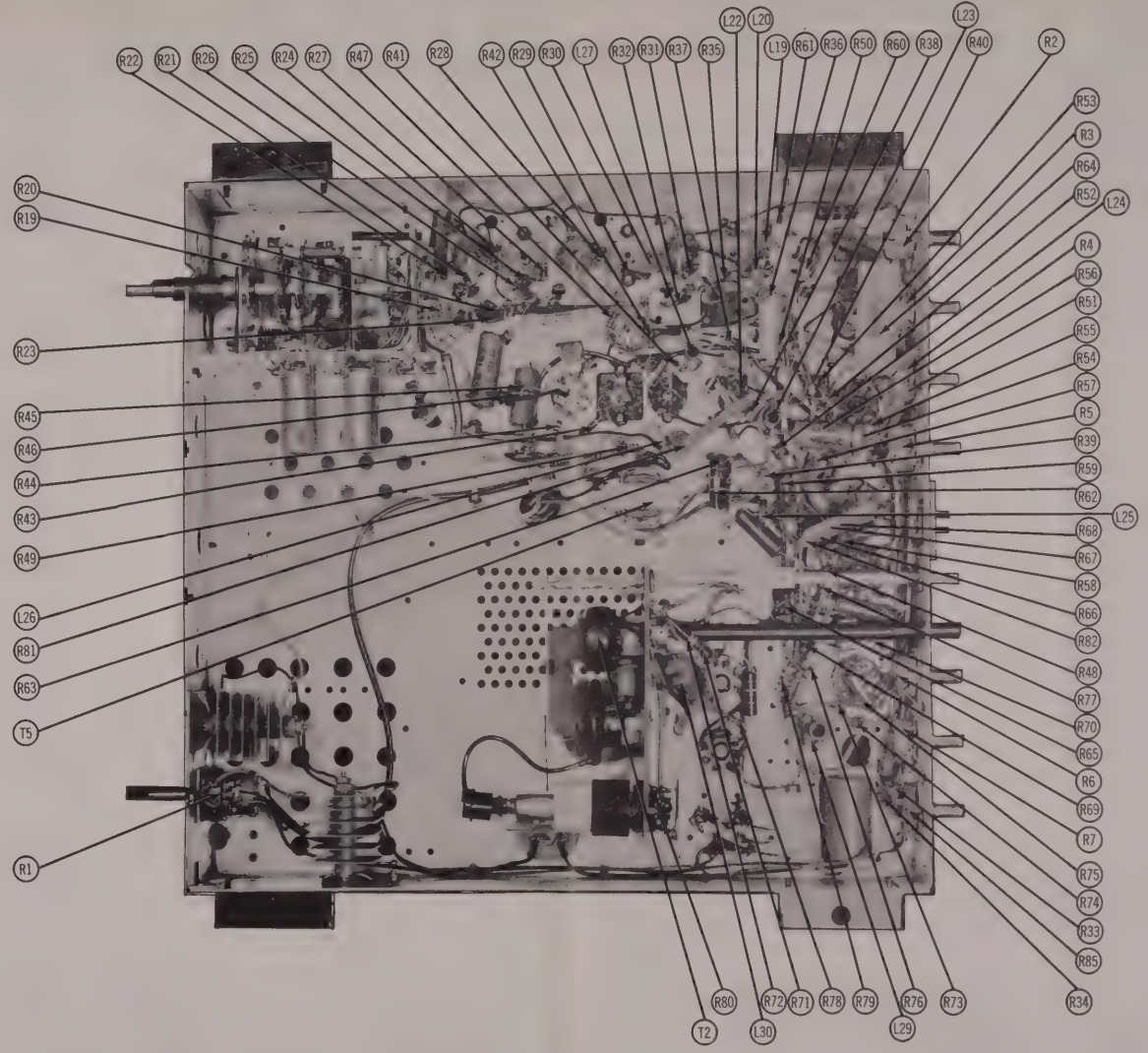
AGC SWITCH IN MAX. COUNTERCLOCKWISE POSITION
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM OUTPUT OF M1
# MEASURED FROM PIN 3 OF V16
■ MEASURED FROM PIN 8 OF V10



TUBE PLACEMENT CHART



ALTERNATE TUNER SCHEMATIC



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

COMPARISON OF 1200 SERIES CHASSIS

The A1200D may be considered the basic chassis in the series 1200 chassis. The D, F, G, K, L, W and X1200D chassis are all based on the A1200D chassis with any one or more of the modifications shown below. See chart below for modifications used in any particular chassis.

CHASSIS	PIX TUBE SIZE See Modification I	HEATER CIRCUIT See Modification IV	TUNER TYPE See Modification VII	MODIFICATIONS USED and/or NOTES FOR RUN I
A1200D	17" glass	Series-parallel	1C1345 Pentode	Basic 1200 series chassis.
D1200D	20" glass	Series-parallel	1C1345 Pentode	I except step D & II
F1200D	17" glass	Transformer	1C1376 Cascode	II, III, IV, VI & VII
G1200D	20" glass	Transformer	1C1376 Cascode	I, II, IV, VI & VII On some chassis, R78 is 270,000 ohms and R76 value is 100,000 or 120,000 ohms.
K1200D	17" glass	Transformer	1C1345 Pentode	IV & V
L1200D	20" glass	Transformer	1C1345 Pentode	I except D, II, IV & V
W1200D	17" glass	Series-parallel	1C1345 Pentode	II & VI
X1200D	20" glass	Series-parallel	1C1345 Pentode	I, II, & VI

MODIFICATION I

To change from a 17 inch to a 20 inch picture tube the following changes are made.

LOCATION OF CHANGE	CHANGE MADE
A. High side of Horizontal Hold Control	82,000 ohms, ½ watt resistor added.
B. Plate (pin 2) circuit of Horizontal Oscillator to R76.	220,000 ohms, ½ watt resistor added.
C. Plate supply decoupling of Horizontal Oscillator (pin 2)	.1MFD, 600 V. paper capacitor added.
D. Plate supply decoupling of Horizontal Oscillator (pin 2)	120,000 ohms, ½ watt resistor R76 replaced by 180,000 ohms, ½ watt resistor.
E. Plate (pin 2) circuit of Horizontal Oscillator	4700 ohms, ½ watt resistor R77 replaced by 8200 ohms, ½ watt resistor.
F. Plate (pin 2) circuit of Horizontal Oscillator	470MMF silver mica capacitor C77 replaced by 390MMF silver mica capacitor.
G. Horizontal Output stage grid coupling	5000MMF disc ceramic capacitor C78 replaced by 560MMF silver mica capacitor.
H. Horizontal Output stage grid leak	330,000 ohms, ½ watt resistor R78 replaced by 390,000 ohms, ½ watt resistor.

LOCATION OF CHANGE	CHANGE MADE
I. Horizontal Output stage screen bypass	.047 MFD, 400V. paper capacitor C82 added.
J. Horizontal Output stage screen resistor	10,000 ohms, 2 watt resistor R86 added.
K. Horizontal Output stage output transformer	Horizontal Output transformer T2 (55D193) replaced by Part #55D197.
L. Servo Loop feedback from Horizontal Output to AGC tube	Two 150,000 ohms, 1 watt resistors R71 and R72 series connected replaced by 33,000 ohms, 1 watt resistor.
M. Series capacitor in doubler power supply	140MFD, 150V. electrolytic capacitor C1 replaced by 200MFD, 150V. electrolytic capacitor.
N. Audio output tube cathode resistor	1500 ohms, ½ watt resistor R47 replaced by 1200 ohms, ½ watt resistor.
O. Speaker	Speaker with field coil resistance of 85 ohms replaced by speaker with field coil resistance of 61 ohms.

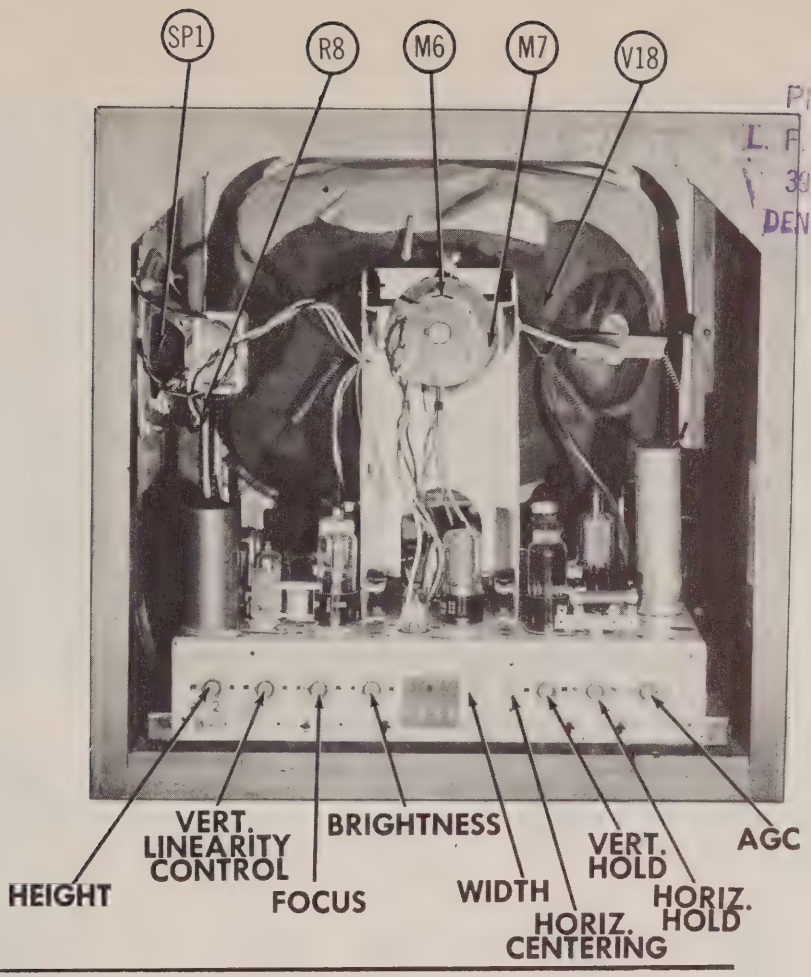
MODIFICATION II

The 75MMF, 500V. ceramic capacitor, C75, connected from plate pin 5 to ground of the horizontal Oscillator, V14, is replaced by a 100MMF, 500V. silver mica capacitor. Some chassis have neither of these capacitors. The 100MMF capacitor is the preferred capacitor.

MODIFICATION III

The horizontal integrating network in the grid circuit (pin 4) of the horizontal oscillator is changed as follows:
A. 4.7 megohms, ½ watt resistor R70 is replaced by 470,000 ohms, ½ watt resistor.
B. .003MFD, 400V. paper capacitor C72 is replaced by .005MFD, 400V. paper capacitor.
C. .01MFD, 400V. paper capacitor C73 is replaced by .05MFD, 400V. paper capacitor.

CONTINUED ON PAGE 17



PROPERTY OF
L. F. GLANZ CO.
3824 MEADE ST.
DENVER, COLORADO

CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
If the horizontal hold control fails to restore synchronization proceed as follows:

FOR CHASSIS A1200D and D1200D

1. Set brightness control for normal picture and turn contrast as low as possible with picture still visible on screen.
2. Turn the horizontal centering control fully clockwise so that right hand edge of raster is visible. If necessary reduce the picture width until the edge is visible.
3. Connect a .1MFD 600 V. capacitor from the junction of R74 and L29 to chassis.
4. Adjust the horizontal hold control for a single picture with its right edge approximately 1/4 inch to the left of the right edge of the raster.
5. Remove the .1MFD capacitor.
6. Adjust the horizontal stabilizer core (B1) until the right edge of the picture and raster are the same distance apart as they were in step 4.
7. Readjust the horizontal centering control and the width control for normal operation.

FOR CHASSIS F, G, K, L, W and X1200D

1. Set the horizontal hold control to the mechanical center of its range.
2. Adjust B1 until the picture synchronizes horizontally.
3. Rotate the horizontal hold control fully clockwise. If the picture remains in sync, switch momentarily to another channel and back again. Picture should be slightly of sync.
4. Rotate horizontal hold control fully counter clockwise. If picture remains in sync, switch momentarily to another channel and picture should be slighly out of sync.

When B1 is properly adjusted results will be obtained as in steps 3 and 4. If correct results are not obtained repeat steps 2, 3 and 4 until they are.

WIDTH ADJUSTMENT

Adjust the width slug (B2) until picture is slightly wider than necessary to fill the picture mask horizontally.

DISASSEMBLY INSTRUCTIONS

1 Remove 4 push on type control knobs from front panel.

2 Remove built-in antenna & lead in wire from rear cover.

3 Remove 7 wood screws and 1 metal screw. Remove rear cover.

4 Disconnect speaker. Remove 4 nuts holding speaker. Remove speaker.

5 Remove 4 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINES ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Hallicrafter PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	90X68C5	6BC5	7BD	
V2	Converter	90X6J6	6J6	7BF	
V3	1st Video IF Amp.	90X68CB6	6CB6	7CM	
V4	2nd Video IF Amp.	90X68CB6	6CB6	7CM	
V5	3rd Video IF Amp.	90X68CB6	6CB6	7CM	
V6	Video Output	90X6AH6	6AH6	7BK	
V7	Sound IF Amp.	90X6AU6	6AU6	7BK	
V8	Ratio Detector	90X6AL5	6AL5	6BT	
V9	AF Amplifier	90X6C4	6C4	6BG	
V10	Audio Output	90X25L6GT	25L6GT	7AC	
V11	Sync Clipper-Sync Phase Inv.	90X12SN7GT	12SN7GT	8BD	
V12	Vert. Oscillator - Vert. Output	90X12BH7	12BH7	9A	
V13	Horiz. AFC	90X6AL5	6AL5	6BT	
V14	Horiz. Mult	90X68N7GT	6SN7GT	8BD	
V15	Horiz. Output	90X25BQ6GT	25BQ6GT	6AM	
V16	Damper	90X12AX4GT	12AX4GT	9BG	
V17	HV Rectifier	90X1B3GT	1B3GT	3C	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Hallicrafter PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V18.	17HP4	17HP4	12C	↑ Circuit changes necessary.
		17HP4	12C	
B	20HP4	20HP4	12C	
		20HP4A ↑	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	140	150	45B207	AFHI-23		UPE15015		FP17	TVL-4561	Note 1
C2A	▲100	300	45C209	E4D491		UPT436		FP410.4		
B	▲10	300								
C	▲200	150								
D	30	150								
C3A	▲200	150	45C210	E4B301		UPE10105		FP316.1	TVL-2444	
B	▲5	150				BR415				
C4	20	450	45B308	PR3450/20		BR20045A		TC75	TVA-1709	
C5	10	50	45B211	PR350/10		BR105		TC32	TVA-1304	
C6	10	150		PRS150/12		BR1015		TC42	TVA-1406	Note 2
C7	5	50	45B175	PRS150/4		BR550		TC30	TVA-1303	
C8	330		47B20331M5	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C9	330		47B30331M5	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C10	15			SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C11	800			BPD-0008	D8-801	TM5T8	801-001	DC-521	5HK-D1	Note 3
C12	470			SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C13	800			BPD-0008	D8-801	TM5T8	801-001	DC-521	5HK-D1	Note 3
C14	800			BPD-0008	D8-801	TM5T8	801-001	DC-521	5HK-D1	Note 3
C15	800			BPD-0008	D8-801	TM5T8	801-001	DC-521	5HK-D1	Note 3
C16	2.2				TCZ-2.2		NP0K-2R2		5TCCB-V22	
C17	1.8									
C18	.68				TCZ-.68		NP0K-R68			
C19	470			SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C20	.78									Note 4
C21	10			SI10N750	TCN-10		N750K-100	MT-541	5TCU-Q1	
C22	3						N150K-030			
C23	800			BPD-0008	D8-801	TM5T8	801-001	DC-525	5HK-D1	Note 3
C24	800			BPD-0008	D8-801	TM5T8	801-001	DC-525	5HK-D1	Note 3
C25	15			SI15	D6-150		GP1K-150	UC-5415	5GA-Q15	
C26	5000			BPD-005	D8-502	TM5D5	811-005	DC-525	5HK-D5	
C27	5000			BPD-005	D8-502	TM5D5	811-005	DC-525	5HK-D5	Note 5
C28	800			BPD-0008	D8-801	TM5T8	801-001	DC-521	5HK-D1	Note 3
C29	.05	200	46AU503J	P288-05	DF-503	PJ385		PT415	2TM-S5	
C30	330		47B20331M5	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C31	5000		47A168	BPD-005	D8-502	TM5D5	811-005	DC-525	5HK-D5	
C32	1000		47A230	BPD-001	D8-102	TM5D1	801-001	DC-521	5HK-D1	
C33A	4000		47A218							
B	4000									
C34	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 2
C35	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C36	1000		47A230	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C37	1000		47A230	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C38	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C39	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C40	10		47B20100K5	SI10	D6-100	5W5Q	GP1K-100	UC-541	5GA-Q1	
C41	5		47A160-6	SI5	TCZ-4.7	5W5Y5	GP1K-050	UC-555	5GA-Y5	
C42	.5	25	46A177							
C43	.1	200	46AU104J	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C44	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C45	30		47X30PG300K5				N150K-300			
C46	.1	400	46AV104J	P288-1	DF-104	PTE4P1		PT401	4TM-P1	
C47	2.2		46A180-4		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C48	.68		47X30PH680K5				N470L-680			
C49A	4000		47A218							
B	4000									
C50	5000		46A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C51	330		47B20331M5	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C52	1000		47A230	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C53	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C54	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C55	.01	400	46AW103J	P468-01	D6-103	PTE4P1	GP2-333-103	PT41	4TM-S1	
C56	.02	600	46AY203J	P868-02	DF-203	PT823		PT812	6TM-S3	
C57	230		47B20221K5	SI230	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C58	.006	600	46AY506J	P868-005	D6-503	PTE3D5	GP2-333-503	PT825	6TM-D5	

PARTS LIST AND DESCRIPTIONS

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C59	22		47B20220M5	SI22	D6-220	5W5Q25	GP1K-220	UC-5422	5GA-Q22	
C60	.05	400	46AN503J	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C61	.0047	400	46B8472L4	P688-0047	D6-472	PTE4D47	GP2-333-472	PT6247	6TM-D47	
C62	.0047	400	46B8473L4	P688-0047	D6-472	PTE4D47	GP2-333-472	PT6247	6TM-D47	
C63	.01	400	46B8103L4	P688-01	D6-103	PTE4D1	GP2-333-103	PT641	6TM-D1	
C64	.0047	400	46B8472L4	P688-0047	D6-472	PTE4D47	GP2-333-472	PT6247	6TM-D47	
C65	.047	400	46B8473L4	P488-047	DF-503	PTE4S47	-	PT4147	4TM-S47	
C66	.047	400	46B8473L4	P488-047	DF-503	PTE4S47	-	PT4147	4TM-S47	
C67	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C68	1000		47B20A102M5	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C69	1000		47B20A102M5	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C70	.001	1000	46B8102L10	P1068-001		PTE16D1		PT6A1	MB-D1	
C71	.005	600	46AZ502F	P868-006		PTE4D5		PT626	6TM-D5	
C72	.003	600	46AW302J	P868-003	D6-302	PTE4D3	GP2-333-302	PT623	6TM-D3	
C73	.01	400	46AW103J	P488-01	D6-103	PTE4S1	GP2-333-103	PT41	4TM-S1	
C74	3900	500	47X30D392K	1686-004		1D8SD4			MB-34	
C75	75		47B20750K5	SI75	D6-750		GP1K-750	UC-5475	5GA-Q75	Note 2
C76	390	500	47X20D391K	1686-0004		5R5T4			MB-34	
C77	390	500	47X20D391K	1686-0004		5R5T4			MB-34	Note 6
C78	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 7
C79	120	3000	47A196							
C80	500	20000	47A216		HY20C	TV3-502	MM-C20T5	413-501		Note 8
C81	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 2
C82	.047	600	47B54723L4	P 688-041	DF-503	PTE4S47		PT6147	6TM-S47	Note 2
C83	.1	600	46AY104J	P688-1	DF-104	PTE8P1		PT601	6TM-P1	

Note 1. Some Models use 30MFD in this application
Note 2. Not used in all Models.
Note 3. Some Models use 500MMF in this application
Note 4. Some Models use .39MMF in this application
Note 5. Some Models use 470MMF in this application
Note 6. Some Models use 470MMF in this application (Part #47X20D471K)
Note 7. Some Models use 560MMF in this application (Part #47X20D561K)
Note 8. Used only when picture tube does not have outer aquadag coating

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2500Ω	½	25B997	QJ-345 *	RTV-234	SBB-723-S	UP25SL	Contrast-Panel
B	1 Meg	½					UR16A	Volume-Rear
C	Switch	½					US-26	Attach to R1B
R2A	5 Meg	½	25B998	QJI-141	AG-85-8	AB-87	U-85	Bright-Note 1
B	Shaft	½	Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
R3A	750Ω	½	25B999	QJI-105	AG-8-8	AB-5	U-4	Vert. Linearity
B	Shaft	½	Not Req.	Not Req.	KSS-3	AK-1	Not Req.	Attach to R3A
R4A	1.5Meg	½	25B1003	QJI-138	AG-83-8	AB-75	U-155	Focus-Note 2
B	Shaft	½	Not Req.	Not Req.	KSS-3	AK-1	Not Req.	Attach to R4A
R5A	5 Meg	½	25B1001	QJ-141	AG-85-8		U-85	Brightness-Note 5
B	Shaft	½	Not Req.	Not Req.	KSS-3		Not Req.	Attach to R5A
R6A	850KΩ	½	25B1001	QJI-133	AG-81-8	AB-89	U-54	Vert. Hold-Note 3
B	Shaft	½	Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R6A
R7A	120KΩ	½	25B1002	QJI-128	AG-53-8	AB-46	U-43	Horiz. Hold-Note 4
B	Shaft	½	Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R7A
R8	5Ω	1						Hum Balance-Wire Wound Note 5

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B17-131 & P1-109 (Panel)

Note 1. Add 1 Meg resistor in series with clockwise terminal & positive side of C4.
Note 2. Some models use alternate control (Part no. 25A1003).
Note 3. Add 330KΩ resistor in series with clockwise terminal & Cground.
Note 4. Add 47KΩ resistor in series with clockwise terminal & junction of C76 & R75.
Note 5. Not used in all models.
Note 6. Add 100KΩ resistor in series with clockwise terminal & ground.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	NOTES
R9	470KΩ	½		BTS-470K	Note 1
R10	470KΩ	½		BTS-470K	Note 1
R11	15KΩ	½		BTS-15K	
R12	2200Ω	½		BTS-2200	
R13	2200Ω	½		BTS-2200	
R14	100Ω	½		BTS-100	
R15	220KΩ	½		BTS-220K	
R16	3300Ω	½		BTS-3300	
R17	15KΩ	½		BTS-15K	
R18	10KΩ	½		BTS-10K	
R19	100KΩ	½	23X20X104K	BTS-100K	
R20	220Ω	½	23X20X221K	BTS-220	
R21	4700Ω	½	23X20X472K	BTS-4700	
R22	47Ω	½	23X20X470K		
R23	1000Ω	½	23X20X102K	BTS-1000	
R24	10KΩ	½	23X20X103K		
R25	1000Ω	½	23X20X102K	BTS-1000	
R26	1000Ω	½	23X20X102K	BTS-1000	
R27	47KΩ	½	23X20X470K		
R28	8300Ω	½	23X20X832K		
R29	1000Ω	½	23X20X102K	BTS-1000	
R30	150Ω	½	23X20X151K	BTS-150	
R31	1000Ω	½	23X20X102K	BTS-1000	
R32	5600Ω	½	23X20X562K	BTS-5600	
R33	390KΩ	½	23X20X394K	BTS-390K	
R34	1.5Meg	½	23X20X155K	BTS-1.5Meg	
R35	1.5Meg	½	23X20X155K	BTS-1.5 Meg	
R36	2.2Meg	½	23X20X225K	BTS-2.2Meg	
R37	1 Meg	½	23X20X105K	BTS-1 Meg	
R38	33KΩ	1	23X30X333K	BTA-33K	
R39	4700Ω	2	23X40X472K	BTB-4700	
R40	10KΩ	½	23X20X103K	BTS-10K	
R41	150Ω	½	23X20X151K	BTS-150	
R43	2300Ω	½	23X20X222K	BTS-2200	
R43	270Ω	½	23X20X271K	BTS-270	
R44	33KΩ	½	23X20X333K	BTS-33K	
R45	10K-5%	½	23X20X103J	BTS-10K-5%	
R46	10KΩ-5%	½	23X20X103J	BTS-10K-5%	
R47	1500Ω	½	23X20X152K	BTS-1500	
R48	33KΩ	½	23X20X333K	BTS-33K	
R49	470KΩ	½	23X20X474K	BTS-470K	
R50	470KΩ	½	23X30X474K	BTS-470K	
R51	2.2Meg	½	23X20X225K	BTS-2.2Meg	
R52	1.2Meg	½	23X20X125K	BTS-1.2Meg	Note 3
R53	2200Ω	½	23X30X222K	BTS-2200	
R54	47KΩ	½	23X20X473K	BTS-47K	Note 3
R55	560KΩ	½	23X30X564K	BTA-560K	
R56	6800Ω	½	23X20X682K	BTS-6800	
R57	2200Ω	½	23X30X222K	BTS-2200	Note 4
R58	10KΩ	½	23X30X103K	BTA-10K	Note 1
R59	22KΩ	½	23X30X225K	BTA-22K	Note 1
R60	47KΩ	½	23X20X473K	BTS-47K	Note 3
R61	10KΩ	½	23X20X103K	BTS-10K	
R62	3300Ω	½	23X20X332K	BTS-3300	
R63	1800Ω	½	23X20X182K	BTS-1800	
R64	8700Ω	3	24A956		
R65	120Ω	½	23X20X121K	BTS-120	
R66	22KΩ	½	23X20X223K	BTS-22K	
R67	100KΩ	½	23X20X104K	BTS-100K	
R68	100KΩ	½	23X20X104K	BTS-100K	
R69	4.7Meg	½	23X20X475K	BTS-4.7Meg	
R70	4.7Meg	½	23X20X475K	BTS-4.7Meg	
R71	150KΩ	1	23X30X154K	BTA-150K	Note 5
R72	150KΩ	1	23X30X154K	BTA-150K	
R73	1500Ω	½	23X20X152K	BTS-1500	Note 6
R74	5600Ω	½	23X20X562K	BTS-5600	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	NOTES
R75	62KΩ	½	23X30X623K	BTS-62K	Note 1
R76	120KΩ	1	23X20X124K	BTS-120K	
R77	8200Ω	½	23X20X822K	BTS-8200	
R78	330KΩ	½	23X20X334K	BTS-330K	Note 7
R79	4700Ω	2	23X40X472K	BTB-4700	
R80	2.2Ω	1	23X30X022K		

Note 1. Not used in all models.
Note 2. Some models use a 680KΩ resistor in this application.
Note 3. Some models use a 22KΩ resistor in this application.
Note 4. Some models use a 33000 resistor in this application.
Note 5. Some models replace R71 & R72 with A 33KΩ resistor 1 watt.
Note 6. Some models use a 1200Ω resistor in this application.
Note 7. Some models use a 390KΩ resistor in this application.
* Special resistor-190Ω cold, 19Ω hot.

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	NOTES
R81	80Ω	10	23A955		
R82	43Ω	3	34A957		
R83	*	*	34A1008		
R84	7.5 Ω	5	34B1004		
R85	22KΩ	1	23X30X223K	BTA-22K	Note 1
R86	10KΩ	1	23X30X103K	BTA-10K	Note 1

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Hallicrafter PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	50Ω	200Ω	55B190	A-8125	A-3000 ②	TB0-3 ③	A-97X ②	Vert. Osc. Trans
			55C190 ①					
T2	270Ω top ⅓ 10Ω	2Ω Sec. 2	55D193 ①					Horiz. Output Trans.
			55D197 ②					
			00					
T3	737Ω top ⅓ 1Ω	40Ω	55C192	A-8140 ③	A-3081 ②	TB0-6 ③	A-103X	Vert. Output Trans.
T4A	3.1Ω		53C263	DY-10 ④	MDF-30 ④	TY-4 ④	Y-20 ④	Horiz. Deflection Coils.
B								Vert. Deflection Coils.

① Alternate Vert. Osc. Trans.
② Drill one new mounting hole.
③ Mount on top of chassis.
④ Drill new mounting holes.
⑤ Tie blue and yellow leads together.
⑥ Use original deflection network.
⑦ Includes 50Ω Horiz. Centering Control.
⑧ Alternate horizontal output transformer

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Hallicrafter PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T5	2.1KΩ	3.75Ω	200Ω	37Ω	55B191A	A-3876	A-2926	RO-2	S-1X	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: Hallicrafter PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	6½"	87Ω	3.75Ω	85C128		6X87S	① 6" EM Speaker 61Ω, Model 1021P.
				85A135 ①			② 8" EM Speaker 85Ω, Model 1012P.
				85A136 ②			③ 8" EM Speaker 61Ω, Model 1088P.
				85A133 ③			

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: Hallicrafter PART No.	MERIT PART No.	NOTES
L1	Ant. Trans.	0Ω	0Ω			Low channel secondary - 0Ω.
L2	Ant. Coil	0Ω				Low channel.
L3	Ant. Coils	0Ω				
L4	Ant. Coil	0Ω				Channel 13.
L5	Fil. Choke	0Ω				
L6	RF Coil	0Ω				Channel 13.
L7	RF Coils	0Ω				
L8	Mixer Grid Coils	0Ω				
L9	Mixer Grid Coil	0Ω				Channel 13. Channel 13.
L10	Osc. Coil	0Ω				
L11	Osc. Coils	0Ω				
L12	Fil. Choke	0Ω				
L13	Conv. Plate	.1Ω				
L14	RF Choke	0Ω				
L15	1st Video IF	.3Ω		51B1301	TV-102	
L16	2nd Video IF	.3Ω	.3Ω	50B561		
L17	3rd Video IF	.2Ω	.2Ω	50B568		Includes TRAP.
L18	4th Video IF	.6Ω	.6Ω	50B562		
L19	Series Peaking Coil	2.4Ω		53B008		14 Microhenries.
L20	Series Peaking Coil	5.5Ω		51A1578		82 Microhenries.
L21	Shunt Peaking Coil	9.5Ω		51A1579		340 Microhenries
L22	Series Peaking Coil	10Ω		51A1580		Wound on 8.3K resistor.
L23	4.5MC Trap	2.3Ω		51B1541	TV-151	
L24	Shunt Peaking Coil	4.3Ω		51A1581		Wound on 6.8K resistor.
L25	Shunt Peaking Coil	15Ω		51A1583		Wound on 3.3K resistor.
L26	Fil. Choke	0Ω		53A366		
L27	Sound IF	1.2Ω		51B1542	TV-151	
L28	Ratio Det.	4Ω	.8KCT	50C473	TV-110*	Tertiary winding - .5Ω.
L29	Horiz. Osc.	8Ω		50B1536	TV-183	
L30	Anti-Ringing Coil	12Ω		53B364		Wound on .1MFD capacitor

* Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	Hallicrafters PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.220	27A173	NF5	6Q4	1090A	6S300	
M2	.220	27A173	NF5	6Q4	1090A	6S300	

MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M3 A	RF Tuner	1C1345	Models 1010P, 1012P, 1021P, 1026P, 111P, 1113P.
B	RF Tuner	1C1376	Models 1013C, 1022C, 1027C.
M4 A	Switch	60B500	AGC Control models 1012P, 1021P, 1026P, 1111P, 1113P.
B	Switch	60B507	AGC Control models 1010P, 1013C, 1022C, 1027C.
M5	Crystal	19B1246	1N64 (Video Detector)
M6	Centering Magnet	21B138	All models.
M7 A	Ion Trap	21A145	Models 1010P, 1012P, 1013C, 1111P.
B	Ion Trap	21A146	Models 1021P, 1022C, 1026P, 1027C, 1113P.
	Cabinet	78F863	Mahogany, model 1010P.
	Cabinet	78F864	Mahogany, model 1012P.
	Cabinet	78F867	Mahogany, model 1021P.
	Cabinet	78F869	Mahogany, model 1026P.
	Back Assembly	41A15309	Models 1010P, 1012P.
	Back Assembly	41A15311	Models 1021P, 1026P.
	Cabinet Bottom	8D1921	Models 1010P, 1012P.
	Cabinet Bottom	8D1920	Models 1021P, 1026P.
	Safety Glass	22D366	Models 1010P, 1012P.
	Safety Glass	22A370	Models 1021P, 1026P.
	Knob	15C518	Channel Selector-All models.
	Knob	15C517	Contrast Control-All models.
	Knob	15C492	Fine Tuning-All models.
	Knob	15C519	Off/On Volume-All models.
	Knob	15A520	AGC Control Switch (Not used on all models)
	Knob	15A530	Horizontal Hold Control (Not used on all models)
	Knob	15A530	Vertical Hold Control (Not used on all models)
	Mask	7D385	Models 1010P, 1012P.
	Mask	7D388	Models 1021P, 1026P.

MODIFICATION IV

To replace series parallel filament arrangement with a filament transformer the following changes are made:

LOCATION OF CHANGE	CHANGE MADE
A. Between power line and Damper heater pin 8	190 ohms cold/19 ohms hot, 5 watts negative temperature coefficient resistor R83 deleted.
B. Heater string shunt	80 ohms, 10 watts, 5% resistor R81 deleted.
C. Heater string shunt	42 ohms, 3 watts, .5% resistor R82 deleted.
D. Heater string choke	Air core RF choke L26 deleted.
E. 1st.IF Amplifier heater bypass	4000MMF dual disc ceramic capacitor C33 deleted.
F. 3rd.IF Amplifier heater bypass	5000MMF disc ceramic capacitor C39 deleted.

LOCATION OF CHANGE	CHANGE MADE
G. Video Amplifier heater bypass	5000MMF disc ceramic capacitor C44 deleted.
H. 4.5MC Amplifier heater bypass	5000MMF disc ceramic capacitor C50 deleted.
I. Heater transformer	Auto transformer 52C258 added.
J. Sync Clipper V11	12SN7GT tube replaced by 6SN7GT tube.
K. Horizontal Output V15	25BQ6GT tube replaced by 6BQ6GT tube.
L. Audio Output V10	25L6GT tube replaced by 6W6 tube.
M. Audio Output tube socket wiring	Cathode pin 8 connected directly to heater pin 7 to place both heater and cathode at the same potential.

MODIFICATION V

LOCATION OF CHANGE	CHANGE MADE
A. Integrating network in Vert. Osc. grid circuit.	22,000 ohms, ½ watt resistor R60 replaced by 47,000 ohms, ½ watt resistor.
B. AGC divider network in Sync Clip. Plate circuit	3300 ohms, ½ watt resistor R57 replaced by 2200 ohms, ½ watt resistor.
C. Horizontal Oscillator cathode resistor	1200 ohms, ½ watt resistor R73 replaced by 1500 ohms, ½ watt resistor.

LOCATION OF CHANGE	CHANGE MADE
D. Horizontal Oscillator plate circuit (pin 2)	4700 ohms, ½ watt resistor R77 replaced by 8200 ohms, ½ watt resistor.
E. Horizontal Oscillator plate circuit (pin 2)	470MMF silver mica capacitor C77 replaced by 390MMF silver mica capacitor.
F. Horizontal Oscillator Adjustment	Test point removed and the Horizontal Oscillator Adjustment procedure changed.

MODIFICATION VI

This modification is composed of MODIFICATION V plus the following changes:

LOCATION OF CHANGE	CHANGE MADE
A. Sync. Clipper plate circuit (pin 2)	680,000 ohms, ½ watt resistor R52 replaced 1.2 megohms, ½ watt resistor.
B. Sync Clipper grid leak (pin 4)	22,000 ohms, ½ watt resistor R54 replaced by 47,000 ohms, ½watt resistor.
C. High side of Horizontal Hold control	82,000 ohms, ½ watt resistor R75 added.
D. Sync Clipper plate (pin 3) circuit supply	10,000 ohms, 1 watt resistor R58 added.

LOCATION OF CHANGE	CHANGE MADE
E. Sync Clipper plate (pin 5) circuit supply	22,000 ohms, 1 watt resistor R59 added.
F. Sync Clipper plate (pin 5) circuit supply	10MFD, 150V. electrolytic capacitor C6 added.
G. AGC Control Switch	Switch M4 (60B500) replaced by switch part #60B507.
H. AGC Control Switching	22,000 ohms, 1 watt resistor R85 added.

MODIFICATION VII

To use a 1C1376 Cascode tuner in place of the 1C1345 Pentode tuner the following changes are made:

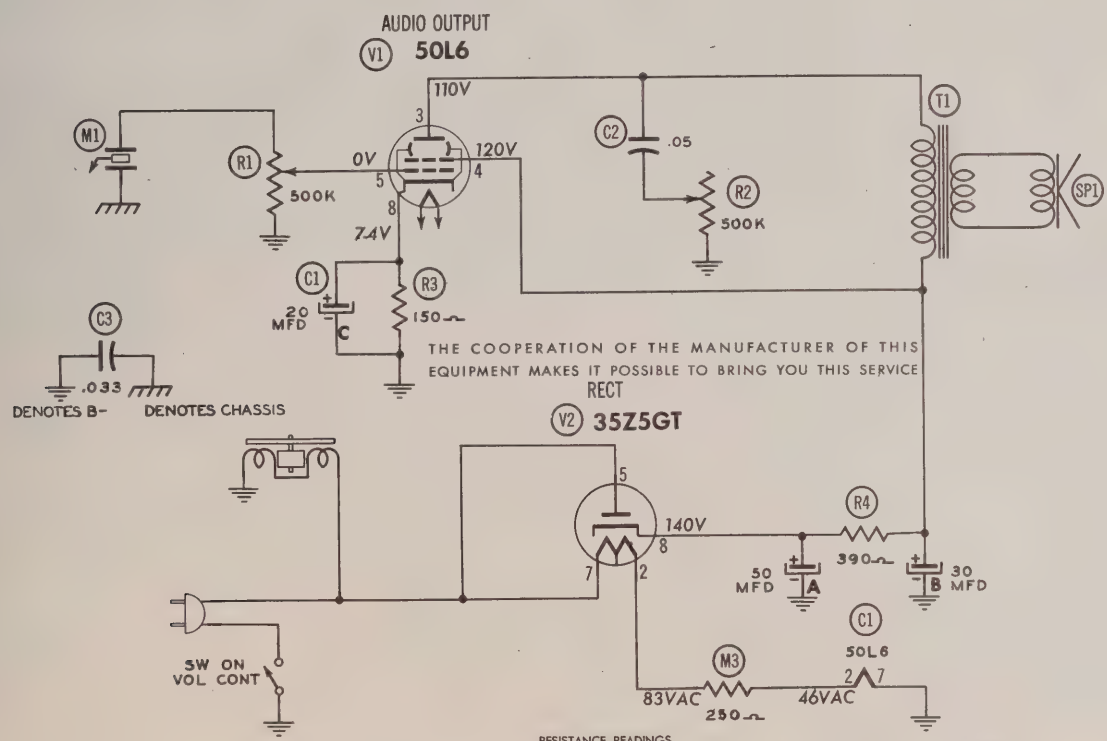
A. The 1C1345 Pentode tuner is removed and replaced by the 1C1376 Cascode tuner. These two tuners do not have the same terminal connections. The 1C1376 Cascode tuner may be used only with chassis which have a filament transformer.
B. A wire to supply 260 volts DC is added between tuner terminal 4 of the Cascode tuner and the junction of R38 (33,000 ohms, 1 watt, the video amplifier screen resistor) and the 260 volt "B" supply.

HUDSON ELECTRONICS
MODEL 374H

PROPERTY OF
L. F. [illegible] SHOP
[illegible]
DENVER, COLORADO

HUDSON ELECTRONICS
MODEL 374H

TRADE NAME	Husdon Model 374H
MANUFACTURER	Hudson Elect. Corp., 110 E. 3rd. St., Mt. Vernon, N.Y.
TYPE SET	AC Operated Audio Amplifier With 3 Speed Manual Record Player
TUBES (Two)	Types 50L6GT Audio Output, 35Z5GT Redtifier
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	.44 Amp @ 117 Volts AC



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	50L6GT	INF	45Ω	†572Ω	†390Ω	5.5Ω	INF	0Ω	150Ω
V 2	35Z5GT	INF	30Ω	36Ω	INF	30Ω	INF	55Ω	40KΩ
V 3	Ballast Tube	INF	45Ω	45Ω	INF	INF	INF	55Ω	INF

† MEASURED FROM PIN 8 OF V2

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: HUDSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Audio Output	50L6GT	50L6GT	7AC	
V2	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: HUDSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■50	150		AFH4-77		UP5315C		FP311	TVL-3430	
B	▲30	150								
C	20	25								
C2	.05	200		P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	.033	400		P688-033				PT4133		

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: HUDSON PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	BA012-051	Q13-133	AG-60-Z	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A
R2A	500KΩ	½	BA011-127	Q13-133	AG-60-Z	B-60	U-48	Tone
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R2A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: HUDSON PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R3	150Ω	½		BTS-150	
R4	390Ω	2		BTB-390	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: HUDSON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.95KΩ	3Ω	182Ω	.46Ω		A-3825 ①	A-2902 ①	RO-302 ①	S-1X ①	

① Bend mounting tabs down, file out slots mount on original bracket.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: HUDSON PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	5"	PM	3Ω		ST-105 Mod P5-X	5A07	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: HUDSON PART No.	ASTATIC PART No.: CARTRIDGE	ASTATIC PART No.: NEEDLE	SHURE PART No.: CARTRIDGE	SHURE PART No.: NEEDLE	ELECTRO-VOICE PART No.: CARTRIDGE	ELECTRO-VOICE PART No.: NEEDLE	REMARKS
M1		15L3-D	R R-78			96-0	0-1 or S-1 and 0-3 or S-3	*Tone Arm

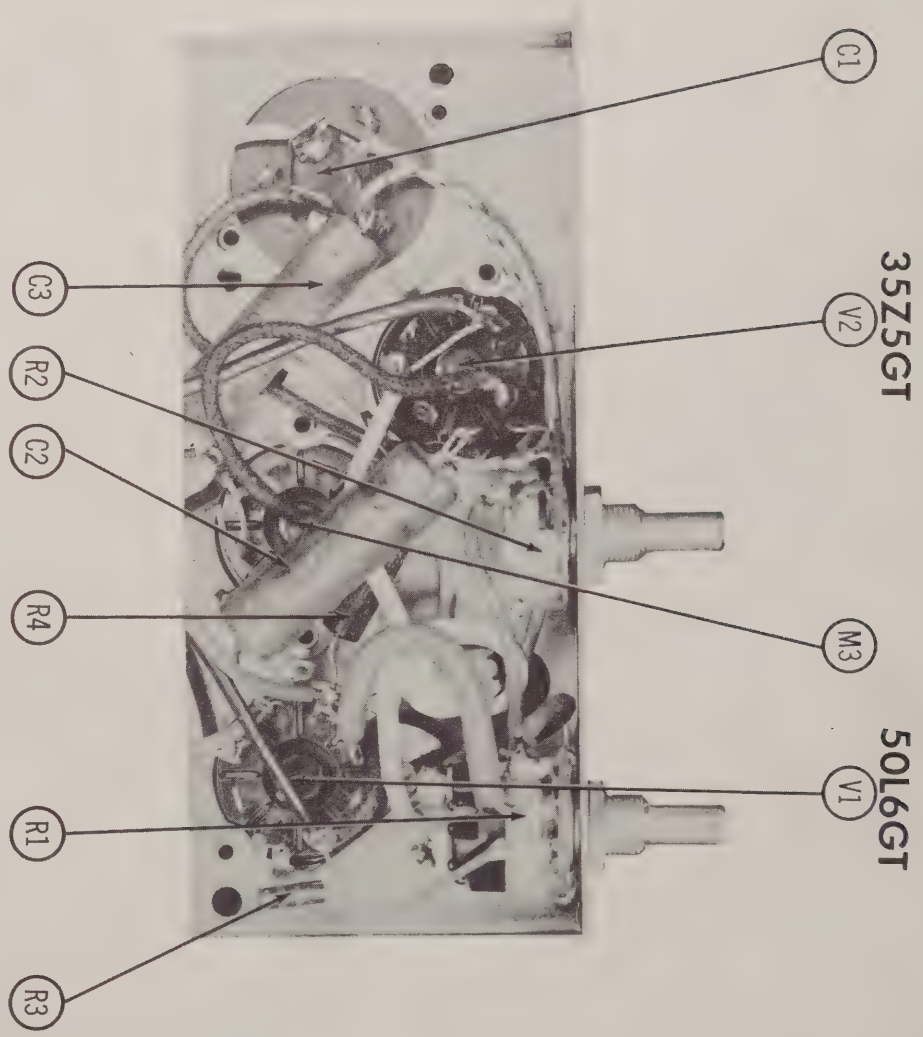
* ASTATIC AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA: HUDSON PART No.	WALCO PART No.	JENSEN PART No.	REMARKS
M2		W-17A and W-17MGA	W-81 and W-82	

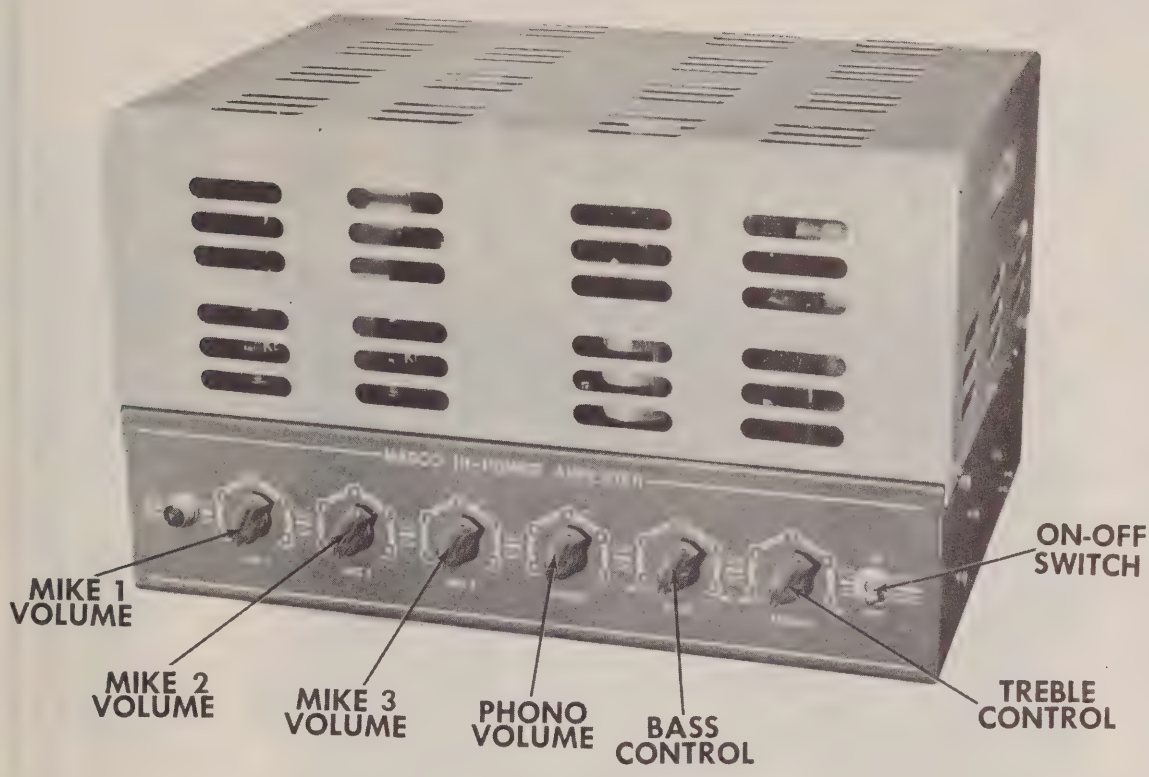
CHASSIS—BOTTOM VIEW



MISCELLANEOUS

ITEM No.	PART NAME	HUDSON PART No.	NOTES
M3	Ballast Tube	CM8752	250Ω (Clarostat 23-55-F)

MASCO
MODEL MA-125



MASCO
MODEL MA-125

TRADE NAME	Masco Model MA-125
MANUFACTURER	Mark Simpson Mfg. Co., Inc., 32-28 49th. St., Long Island City 3, N.Y.
TYPE SET	AC Operated 4 Channel 125 Watt Audio Amplifier
TUBES (Twelve)	Types (3) 6SJ7 Mic Pre Amp., 6SN7GTA Mixer AF Amp., 6SL7GT AF Amp. -Phase Inv., (2) 6SN7GTA Drivers, (2) 807 Audio Output, 6SN7GTA Volt. Reg., 5R4G HV Rect., 5Y3GT LV Rect.
POWER SUPPLY	105-125 Volts AC-60 Cycle RATING 2.0 Amp @ 117 Volts AC

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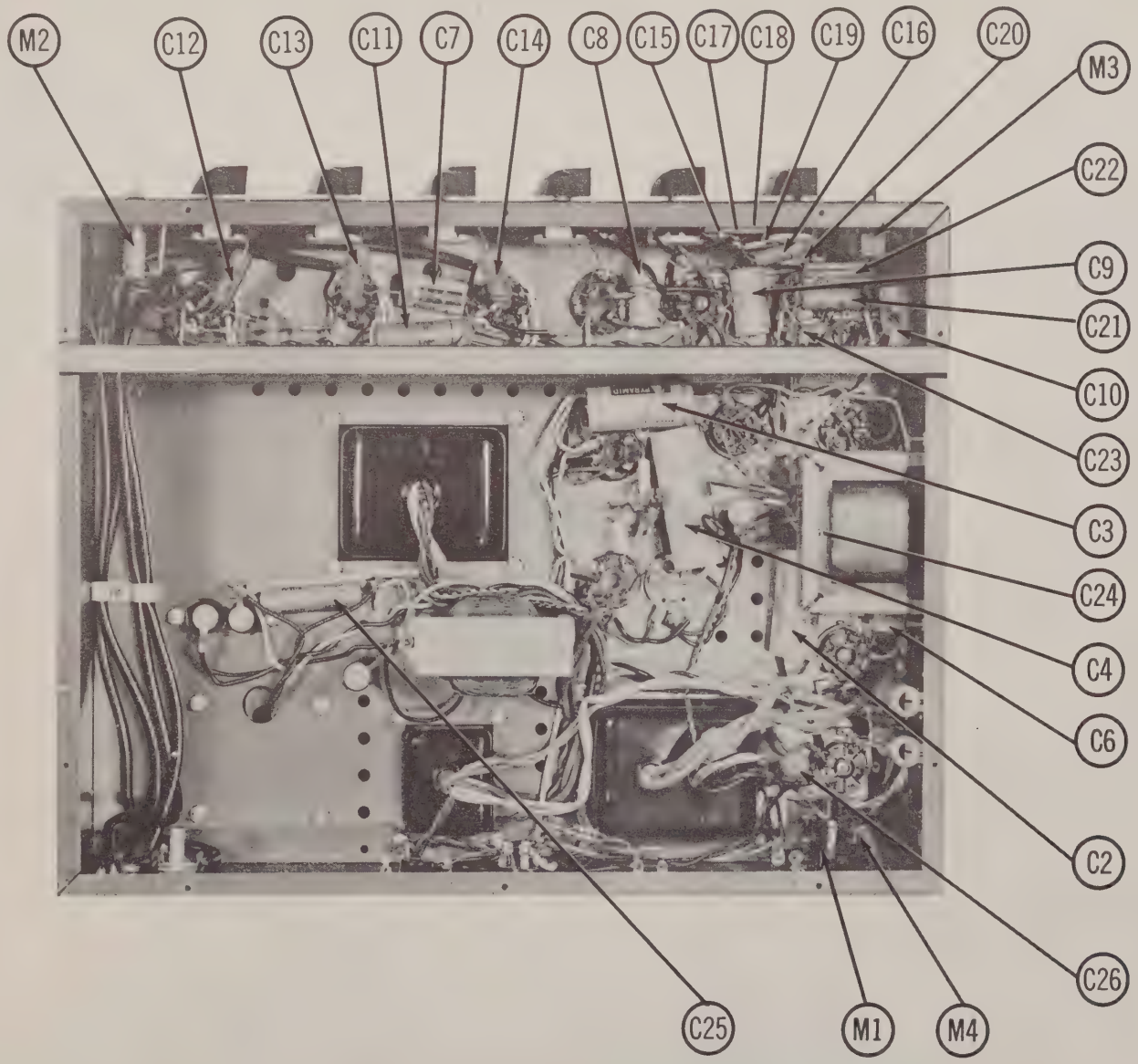
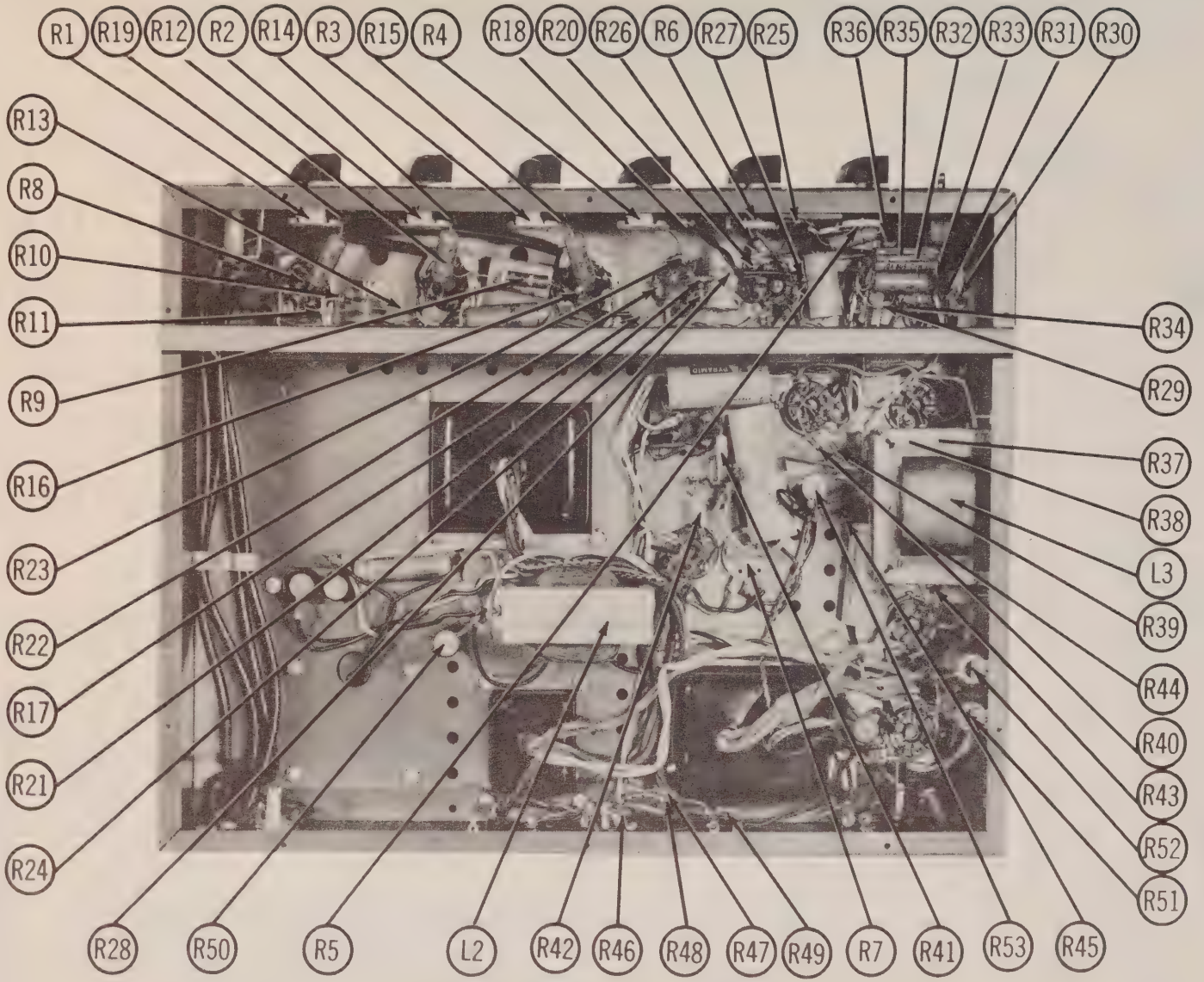
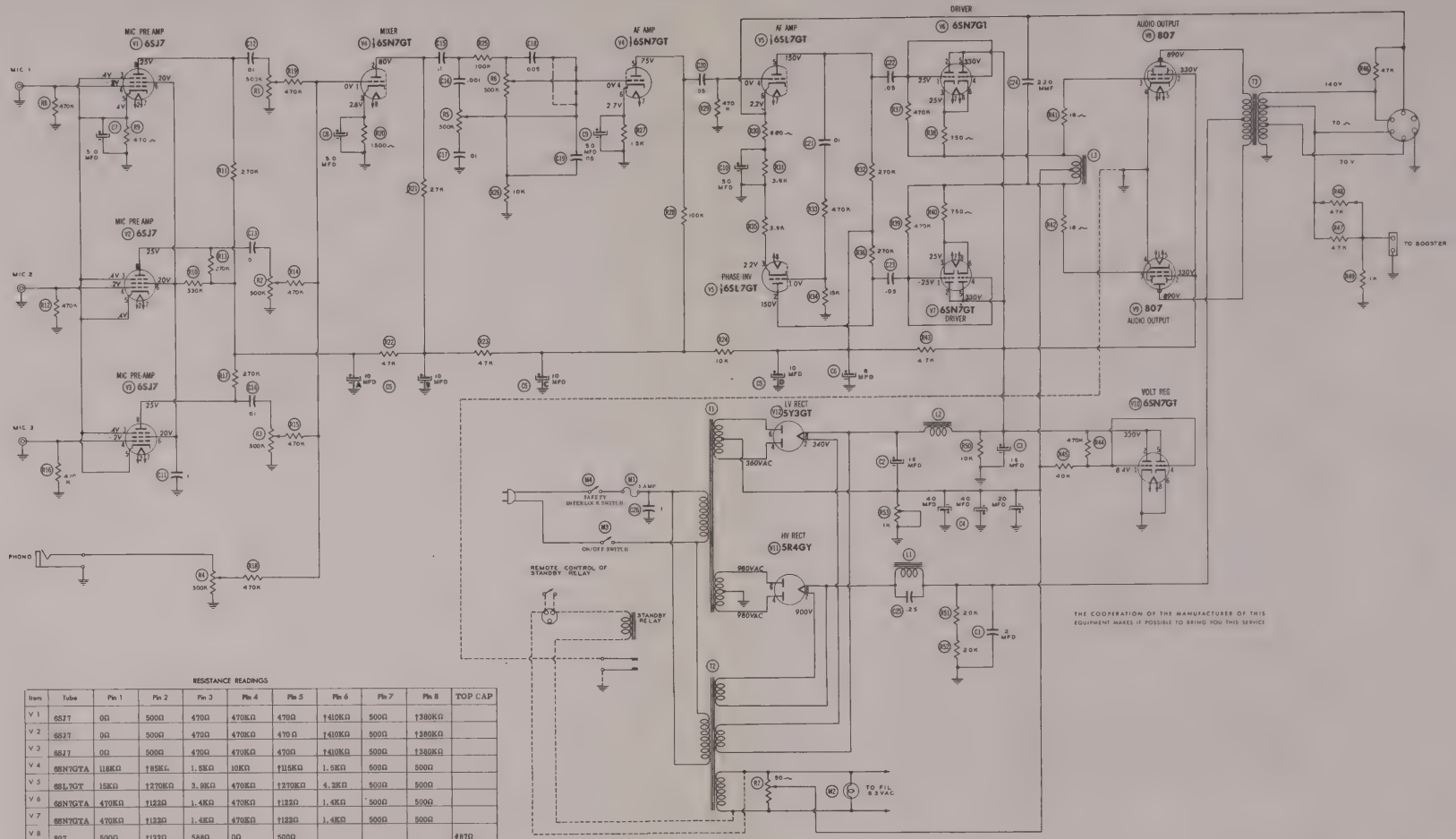


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. [illegible] INC



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	TOP CAP
V 1	6SJ7	0Ω	500Ω	470Ω	470KΩ	470Ω	†410KΩ	500Ω	†380KΩ	
V 2	6SJ7	0Ω	500Ω	470Ω	470KΩ	470Ω	†410KΩ	500Ω	†380KΩ	
V 3	6SJ7	0Ω	500Ω	470Ω	470KΩ	470Ω	†410KΩ	500Ω	†380KΩ	
V 4	6SN7GTA	118KΩ	†85KΩ	1.5KΩ	10KΩ	†116KΩ	1.5KΩ	500Ω	500Ω	
V 5	6SL7GT	15KΩ	†270KΩ	3.9KΩ	470KΩ	†270KΩ	4.2KΩ	500Ω	500Ω	
V 6	6SN7GTA	470KΩ	†122Ω	1.4KΩ	470KΩ	†122Ω	1.4KΩ	500Ω	500Ω	
V 7	6SN7GTA	470KΩ	†122Ω	1.4KΩ	470KΩ	†122Ω	1.4KΩ	500Ω	500Ω	
V 8	807	500Ω	†122Ω	588Ω	0Ω	500Ω				#87Ω
V 9	807	500Ω	†122Ω	588Ω	0Ω	500Ω				#87Ω
V 10	6SN7GTA	35KΩ	†122Ω	0Ω	35KΩ	†122Ω	0Ω	500Ω	500Ω	
V 11	5R4GY	INF	35KΩ	INF	51Ω	†4.8KΩ	52Ω	INF	35KΩ	
V 12	5Y3GT	INF	9.5KΩ	INF	●63Ω	INF	●87Ω	INF	9.5KΩ	

† MEASURED FROM PIN 2 OF V12
‡ MEASURED FROM PIN 8 OF V11
● MEASURED FROM -40VDC LINE

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MASCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Mic Pre Amp.	6SJ7	6SJ7	8N	
V2	Mic Pre Amp.	6SJ7	6SJ7	8N	
V3	Mic Pre Amp.	6SJ7	6SJ7	8N	
V4	Mixer-AF Amp.	6SN7GTA	6SN7GTA	8BD	
V5	AF Amp. Phase Inv.	6SL7GTA	6SL7GTA	8BD	
V6	Driver	6SN7GTA	6SN7GTA	8BD	
V7	Driver	6SN7GTA	6SN7GTA	8BD	
V8	Audio Output	807	807	5AW	
V9	Audio Output	807	807	5AW	
V10	Voltage Regulator	6SN7GTA	6SN7GTA	8BD	
V11	HV Rectifier	5R4GY	5R4GY	5T	
V12	LV Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

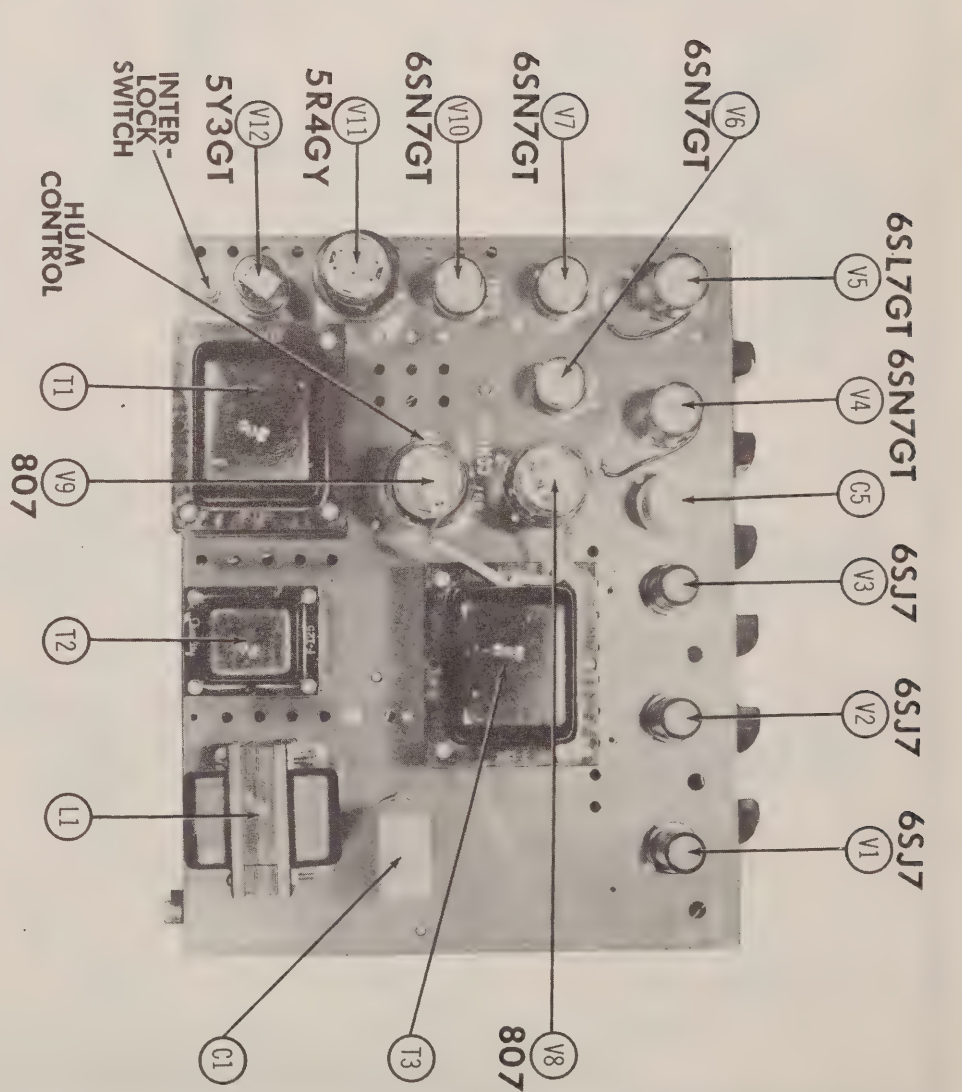
ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	2	1000		1009D-2.0		T10020		TX805	CR-21	
C2	16	450		PRS450116		BR1645A		TC74	TVA-1708	
C3	16	450		PRS450116		BR1645A		TC74	TVA-1708	
C4A	40	150		PRS150/100		EDL44215		3N532	TVA-1420	RED
B	40	150								RED
C	20	150								BLUE
C5A	▲10	450		AFH4-10		UPT111145		FP434	TVL-4760	
B	■10	450								
C	▲10	450								
D	10	450								
C6	8	450		PRS450/8		BR845A		TC71	TVA-1704	
C7	50	50		PRS50/50		BR505		TC39	TVA-1308	
C8	50	50		PRS50/50		BR505		TC39	TVA-1308	Note 1.
C9	50	50		PRS50/50		BR505		TC39	TVA-1308	Note 1.
C10	50	50		PRS50/50		BR505		TC39	TVA-1308	
C11	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	Note 2.
C12	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C13	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C14	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C15	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C16	.001	600		P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C17	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C18	.005	200		P688-005	D6-502	PTEGD5	GP2-33-502	PT625	6TM-D5	
C19	.05	200		P688-05	DF-503	PJ2S5		PT415	2TM-S5	
C20	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C21	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C22	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C23	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C24	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C25	.25	600		684-25		PTE6P25		PT6025	6TM-P25	
C26	.1	600		689ZGXY-1		PJ6P1		PT601	6TM-P1	

Note 1. Some models use 10MFD in this application.
Note 2. Some models use .5MFD in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MASCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	U-48	Mike Volume #1
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	U-48	Mike Volume #2
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R2A
R3A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	U-48	Mike Volume #3
B	Shaft		Not Req.	Noy Req.	RS-2	Not Req.	Not Req.	Attach to R3A
R4A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	U-48	Phono Volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R4A
R5A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	U-48	Treble
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R5A
R6A	500KΩ	½	33-010-188	Q13-133	AG-60-Z	B-60	U-48	Bass
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R6A
R7A	50Ω	2			AK3-50			Hum Balance -Wire Wound
B	Shaft				FKS-1/4			Attach to R7A

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MASCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R8	470KΩ	½		BTS-470K	
R9	470Ω	2		BTB-470	
R10	330KΩ	½		BTS-330K	
R11	270KΩ	½		BTS-270K	
R12	470KΩ	½		BTS-470K	
R13	270KΩ	½		BTS-270K	
R14	470KΩ	½		BTS-470K	
R15	470KΩ	½		BTS-470K	
R16	470KΩ	½		BTS-470K	
R17	270KΩ	½		BTS-270K	
R18	470KΩ	½		BTS-470K	
R19	470KΩ	½		BTS-470K	
R20	1500Ω	½		BTS-1500	
R21	27KΩ	½		BTS-27K	
R22	47KΩ	½		BTS-47K	Note 1
R23	47KΩ	½		BTS-47K	
R24	10KΩ	½		BTS-10K	
R25	100KΩ	½		BTS-100K	
R26	10KΩ	½		BTS-10K	
R27	1500Ω	½		BTS-1500	
R28	100KΩ	½		BTS-100K	
R29	470KΩ	½		BTS-470K	
R30	680Ω	½		BTS-680	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MASCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R31	3900Ω	½		BTS-3900	
R32	270KΩ	½		BTS-270K	
R33	470KΩ	½		BTS-470K	
R34	15KΩ	½		BTS-15K	
R35	3900Ω	½		BTS-3900	
R36	270KΩ	½		BTS-270K	
R37	470KΩ	½		BTS-470K	
R38	750Ω	½			
R39	470KΩ	½		BTS-470K	
R40	750Ω	½			
R41	18Ω	½			
R42	18Ω	½			
R43	4700Ω	½		BTS-4700	
R44	470KΩ	½		BTS-470K	
R45	40KΩ	½			
R46	47KΩ	½		BTS-47K	
R47	47KΩ	½		BTS-47K	Note 2
R48	47KΩ	½		BTS-47K	Note 3
R49	1000Ω	½		BTS-1000	Note 4
R50	10KΩ	20		2D-10K	
R51	20KΩ	20		2D-20K	
R52	20KΩ	20		2D-20K	
R53	1000Ω	10		1 3/4AA-1000	Note 5

Note 1. Some models use a 100KΩ resistor in this application.
Note 2. Some models use a 8200Ω 1 Watt resistor in this application.
Note 3. Not used in all models.
Note 4. Some models use a 470Ω 1 Watt resistor in this application.
Note 5. Adjustable aresistor-Adjust to-36.5 Volts.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ 1.4A	1960VCT .087ADC	720VCT @ .115ADC						

TRANSFORMER (FILAMENT)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T2	117VAC @ .30A	5VAC @ 4.15A	5VAC @ 3.35A	6.3VAC @ 5.26A					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T3	8.2KΩ CT	140V 70Ω 70V	33.6Ω CT	1.29Ω tap @ .84Ω @ .66Ω						

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA MASCO PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA CHICAGO PART No.	REPLACEMENT DATA TRIAD PART No.
L1	.070A	70Ω	4.73Hy		C-1411			C-15A
L2	.100ACD	122Ω	7.9Hy		C-1721 ①	C-2995	R-8120	

① Drill one new mounting hole.

(DRIVER) CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L3	032ADC	140ΩCT	12.6Hy. CT					

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA MASCO PART No. FUSE	MASCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	5A 25V			312005	341001	AGC5	HKP

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA MASCO PART No.	REPLACEMENT DATA	NOTES
M2	Bayonet	6-8	.15	Brown			Type No. 47.

MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
M3	Switch		On/Off
M4	Switch		Safely interlock.

DON McGOHAN
MODEL MG-30-B

DON McGOHAN
MODEL MG-30-B

TRADE NAME	Don McGohan Model MG-30-B
MANUFACTURER	Don McGohan Inc., 3700 W. Roosevelt Rd., Chicago 24, Ill.
TYPE SET	AC Operated 4 Channel Audio Amplifier
TUBES (Seven)	Types 6SC7 Mic. Pre-Amp., 6SC7 Phono Pre-Amp., 6SQ7 AF Amp., 6SL7GT Phase Inv., (2) 6L6G Audio Output, 5U4G Rectifier
POWER SUPPLY	110-120 Volts AC RATING .65 Amp. @ 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

DON McGOHAN
MODEL M6-30-B

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Don McGohan PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Mic. Pre. Amp.	6SC7	6SC7	8S	
V2	Phono Pre. Amp.	6SC7	6SC7	8S	
V3	AF Amplifier	6SQ7	6SQ7	8Q	
V4	Phase Inverter	6SL7GT	6SL7GT	8BD	
V5	Audio Output	6L6G	6L6G	7AC	
V6	Audio Output	6L6G	6L6G	7AC	
V7	Rectifier	5U4G	5U4G	5L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

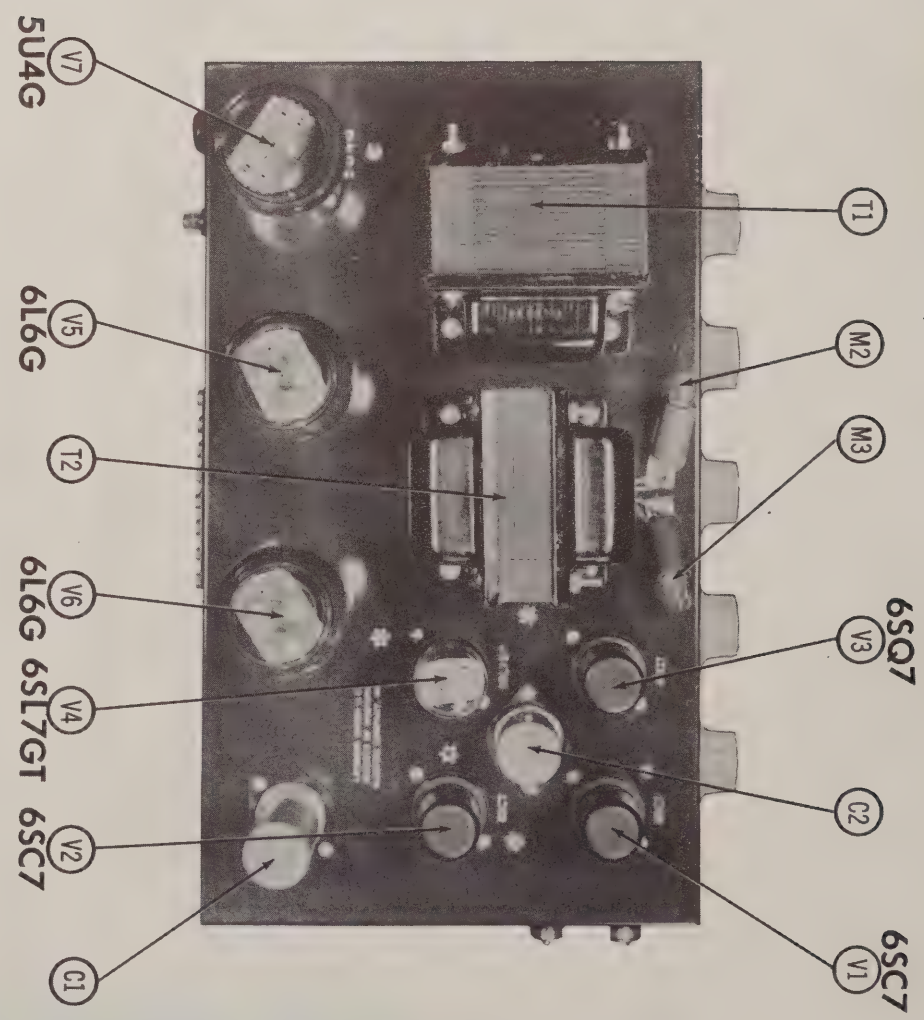
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: Don McGohan PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲20	475		AFH3-51						
B	■20	475		PRS500/10						
C2A	▲10	475		AFH2-67		UP1150		FP258	TVL-3835	
B	■10	475								
C3	16	150		PRS150/16		BR1615		TC44	TVA-1409	
C4	10	50		PRS50/10		BR105		TC32	TVA-1304	
C5	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note 1
C6	.02	600		P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C7	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note 1
C8	.02	600		P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C9	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C10	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C11	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C12	.02	600		P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C13	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C14	3000	500		1467-003	D6-302	1W5D3	GP2-333-302	MC461	1FM-23	
C15	.02	600		P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C16	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C17	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C18	.02	600		P688-02	DF-203	PTE6S2		PT612	6TM-S2	

Note 1. Some Models use .02MFD in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: Don McGohan PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	1/2	BA011-301	G13-133	AG-60-Z	B-60	U-48	Mike No. 1 volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	1/2	BA011-301	G13-133	AG-60-Z	B-60	U-48	Mike No. 2 volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R2A
R3A	1Meg	1/2	BA013-010	G19-137X	AT-112	BT-71	UT-443	Phono Volume -Tapped @ 500KΩ
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R3A
R4A	500KΩ	1/2	BA011-301	G13-133	AG-60-Z	B-60	U-48	Treble
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R4A
R5A	500KΩ	1/2	BA012-131	G13-133	AG-60-Z	B-60-S	U-48	Bass
B	Shaft		Not.Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R5A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R5A

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Don McGohan PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R6	4.7Meg	1/2		BTS-4.7Meg	
R7	270KΩ	1/2		BTS-270K	
R8	4.7Meg	1/2		BTS-4.7Meg	
R9	270KΩ	1/2		BTS-270K	
R10	270KΩ	1/2		BTS-270K	
R11	100KΩ	1/2		BTS-100K	
R12	270KΩ	1/2		BTS-270K	
R13	22KΩ	1/2		BTS-22K	
R14	10 Meg	1/2		BTS-10 Meg	
R15	33KΩ	1/2		BTS-33K	
R16	10 Meg	1/2		BTS-10 Meg	
R17	68KΩ	1/2		BTS-68K	
R18	100KΩ	1/2		BTS-100K	
R19	47KΩ	1/2		BTS-47K	
R20	4.7Meg	1/2		BTS-4.7Meg	
R21	1000Ω	1/2		BTS-1000	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Don McGohan PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R22	100KΩ	1/2		BTS-100K	
R23	470KΩ	1/2		BTS-470K	
R24	1500Ω	1/2		BTS-1500	
R25	100KΩ	1/2		BTS-100K	
R26	15KΩ	1/2		BTS-15K	
R27	2700Ω	1/2		BTS-2700	
R28	100KΩ	1/2		BTS-100K	
R29	180KΩ	1/2		BTS-180K	
R30A	200Ω	30			
B	14KΩ	30			
C	2500	30			
R31	180KΩ	1/2		BTS-180K	
R32	10KΩ	1/2		BTS-10K	
R33	22KΩ	1/2		BTS-22K	
R34	10KΩ	1/2		BTS-10K	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA Don McGohan PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .65A	812VCT .125ADC	5VAC @ 3A	6.3VAC @ 7A		PC-8413 ①	P-3156 ②	PV-200	R-35A ①

① Drill new mounting holes.
② Parallel both 6.3 Volt windings.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA Don McGohan PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	7.2KΩ CT	500Ω tap @ 250Ω, 16Ω, 8Ω 4Ω, 2.7Ω 2Ω	270Ω CT	23.2Ω tap @ 15.4Ω, 1Ω, .45Ω .28Ω, .25Ω, .24Ω		A-3801 ①				① This unit does not have the 2.7Ω and 2Ω taps.

FUSES

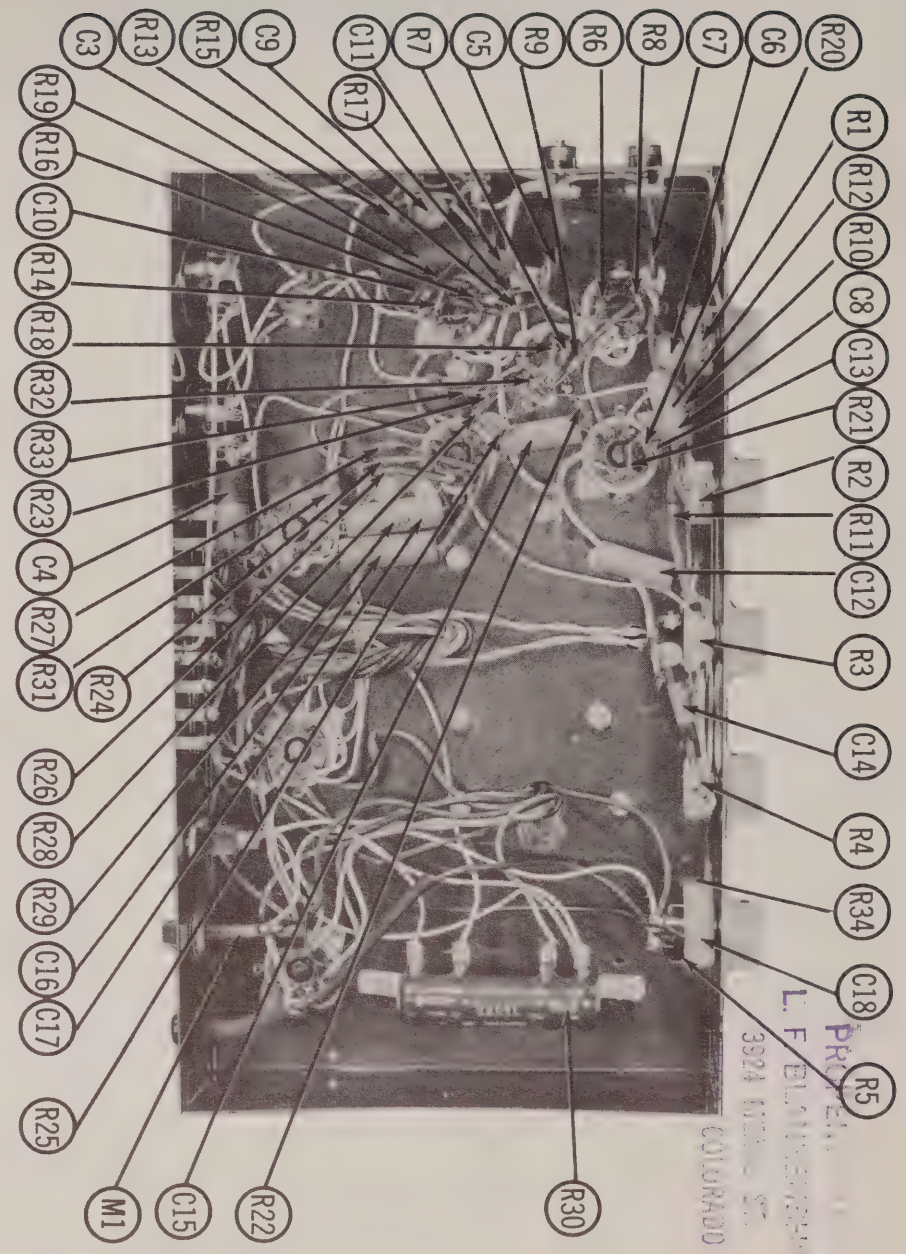
ITEM No.	TYPE	RATING	REPLACEMENT DATA Don McGohan PART No. FUSE	Don McGohan PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	2A 250V.			312002	342001	AGC-2	HKP

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA Don McGohan PART No.		NOTES
M2	Bayonet	6-8	.15	Brown			Type #47
M3	Bayonet	6-8	.15	Brown			Type #47

SET 188
FOLDER 9

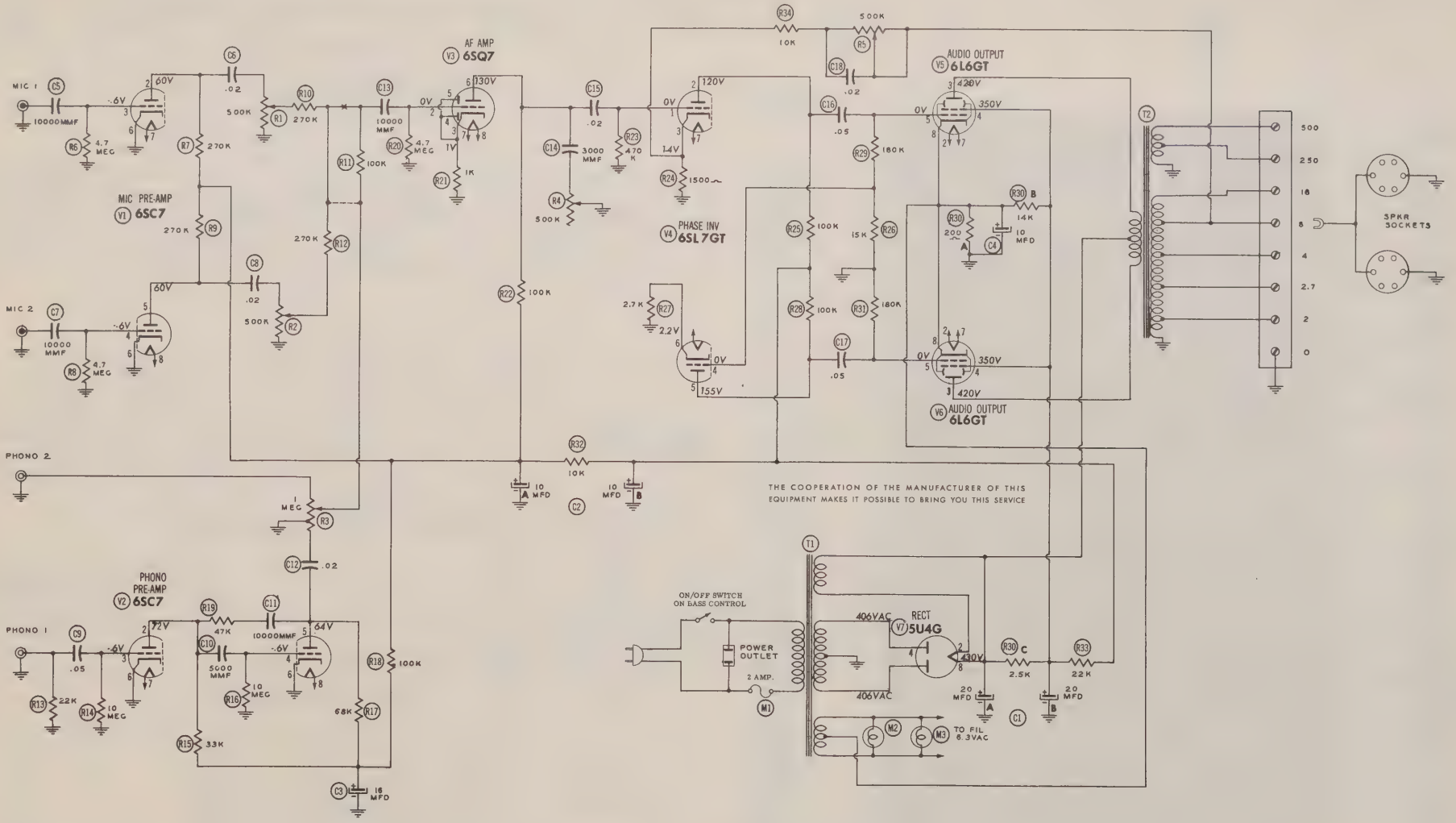
CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. BLANKENSHIP
3924 [illegible]
COLORADO

DON McGOHAN
MODEL M6-30-B

DON McGOHAN
MODEL M6-30-B



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SC7	0Ω	†312KΩ	4.7Meg	4.7Meg	†312KΩ	0Ω	200Ω	200Ω
V 2	6SC7	0Ω	†180KΩ	10 Meg	10 Meg	†200KΩ	0Ω	200Ω	200Ω
V 3	6SQ7	0Ω	4.7Meg	1KΩ	1KΩ	1KΩ	†147KΩ	200Ω	200Ω
V 4	6SL7GT	470KΩ	†137KΩ	1.5KΩ	15KΩ	†137KΩ	2.7KΩ	200Ω	200Ω
V 5	6L6G	INF	200Ω	†138Ω	†2.5KΩ	195KΩ	INF	200Ω	200Ω
V 6	6LG6	INF	200Ω	†132Ω	†2.5KΩ	180KΩ	195KΩ	200Ω	200Ω
V 7	5U4G	INF	16.7KΩ	INF	58Ω	INF	63Ω	INF	16.7KΩ

† MEASURED AT PIN 8 OF V7

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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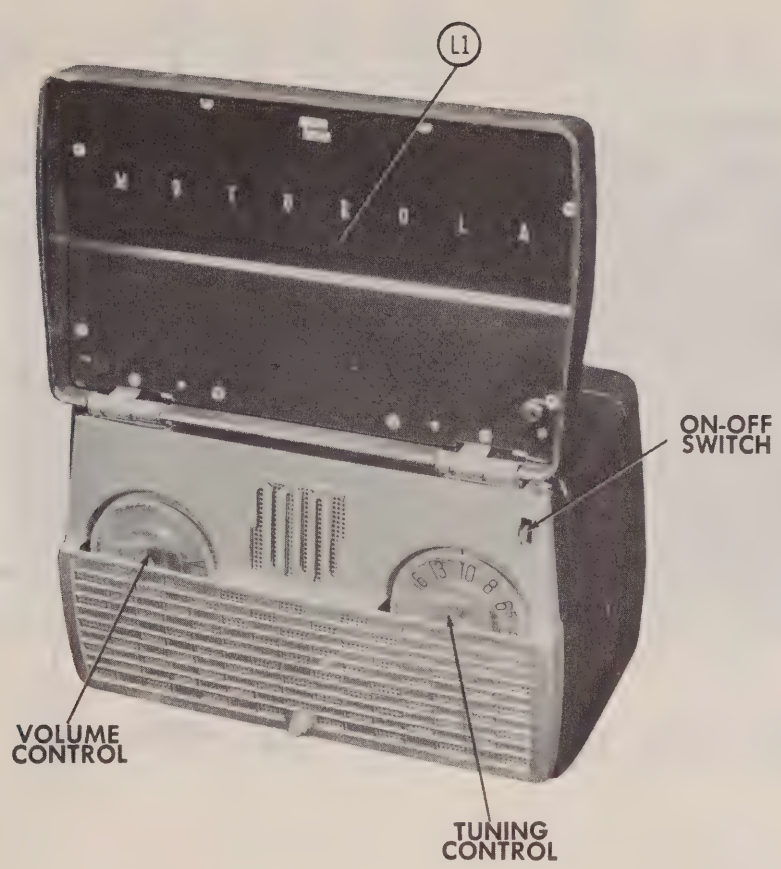
188-9

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

MOTOROLA MODELS 52M1U, 52M2U, 52M3U (Ch. HS-300)



MOTOROLA MODELS 52M1U, 52M2U, 52M3U (Ch. HS-300)

MOTOROLA MODEL 52M1U

TRADE NAME	Motorola Models 52M1U, 52M2U, 52M3U (Ch. HS-300)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3S4 Audio Output
POWER SUPPLY	110-120 Volts AC/DC (or) 3 Volt "A" Supply & 67.5 Volts "B" Supply
RATING	.12 Amp. @ 117 Volts AC (or) 150 MA @ 3 Volts DC & 8MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	535-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alginment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455 KC (400~ Mod.)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	"	"	1620 KC	"	"	A4	"
3.		Loop	1400 KC	Tune to 1400 KC signal	"	A5	Replace chassis in cabinet. A5 is reached through hole under plug button on side of cabinet. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det-AVC-AF Amp.	1U5	1U5	6BW	
V4	Audio Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	150	23B691995	E73D20						Red
B	40	150								Blue
C	250	10								Orange
C2	470		21K481377	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C3	.05	200	8K71213	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C4	10000		21K482726	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C5	47		21K77373	SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C6	10000		21K482726	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C7	.05	100	8K71213	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C8	10000		21K482726	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note 1
C9A	100			SI100	D6-101	TM5T1	GP1K-101	UC-531		Note 2
B	2000		21K691992	BPD-002	DD-202	TM5D2	801-002	DC-522	34C4	Note 3
C	100			SI100	D6-101	TM5T1	GP1K-101	UC-531		
D	5000			BPD-005	DD-502	TM5D5	811-005	DC-525		
C10	5000		21R115312	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C11	.05	400	8K471635	P488-05		PTE4S5		PT415	4TM-S5	
C12	.05	200	†24K691986	P288-05		PJ2S5		PT415	2TM-S5	
C13	100		21B77286	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 4
C14	.005	100	8K24966	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 5
C15A	100			SI100		TM5T1		UC-535		
B	5000		♦21B601036	BPD-005	♦PC-91	TM5D5	♦1407-03	DC-525	♦103C3	Note 6
C	5000			BPD-005		TM5D5		DC-525		
D	100			SI100		TM5T1		UC-531		Note 7

Note 1. Replaced by C15B in Models not using C9.
Note 2. In Models using C15, C9A becomes separate unit C13.
Note 3. In Models using C15, C9B becomes separate unit C14.
Note 4. In Models not using C15, this unit is C9A.
Note 5. In Models not using C15, this unit is C9B .
Note 6. Replaced by C8 in Models using C9.
Note 7. Not used in Models using C9.
♦ Items C15A, C15B, C15C, C15D, R19A, R19B, R19C are combined in one unit.
† Original part includes series coil. When replacing with other than mfgrs part, rewind coil.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1 Meg	½	18A691993					Volume

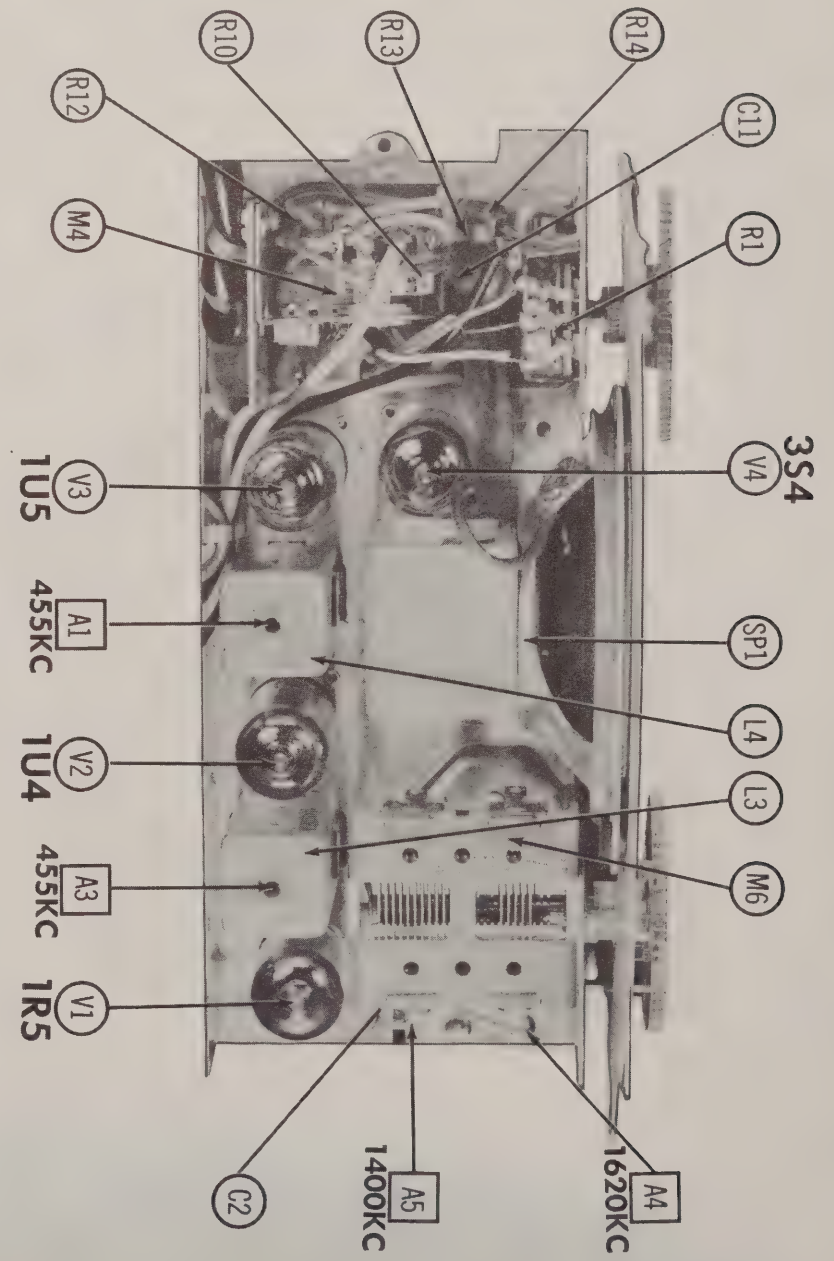
RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R2	4.7Meg	½	6R2122	BTS-4.7Meg	
R3	100KΩ	½	6R6081	BTS-100K	
R4	22KΩ	½	6R6397	BTS-22K	
R5	10 Meg	½	6R2109	BTS-10 Meg	
R6	3.3 Meg	½	6R2118	BTS-3.3Meg	
R7	10 Meg	½	6R2109	BTS-10 Meg	
R8	4.7Meg	½	6R2122	BTS-4.7Meg	
R9	1 Meg	½	6R6004	BTS-1 Meg	
R10	3.3Meg	½	6R2118	BTS-3.3Meg	
R11A	150Ω	10	17K692009		
B	2000Ω	10			

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R12	3300Ω	½	6R5581	BTS-3300	
R13	220KΩ	½	6R6015	BTS-220K	
R14	820Ω	½	6R6269	BTS-820	
R15	270Ω	½	6R6432	BTS-270	
R16	680Ω	½	6R6040	BTS-680	
R17	27Ω	½	6R5683		
R18	3900Ω	½	6R5554	BTS-390	
R19A	4.7Meg	▲	♦21B601036	BTS-4.7Meg	
B	1 Meg	▲		BTS-1 Meg	Note
C	2.2Meg	▲		BTS-2.2Meg	

Note. Not used in all models.
▲ Items R19A, R19B, R19C, C15A, C15B, C15C, C15D are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART. No.	
	PRI.	SEC.	PRI.	SEC.						
T1	6KΩ	3.5Ω	356Ω	.62Ω	25K692006					

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	VIKING PART No.	QUAM PART No.	
SP1	3½"	PM	3.5Ω	50K600141 50K600142 ① 50B610112 ①	35J4	3A07	① Alternate 3½" Speaker

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L1	Loop Ant.	2.4Ω		1X610665		Includes Complete Front Cover Assembly
L2	Osc. Coil	2.3Ω	11Ω	24X610513		
L3	Input IF	32Ω	32Ω	24K600824	BC-352	
L4	Output IF	40Ω	40Ω	24K600825	BC-353	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	MOTOROLA PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.059A	48B791092	NB5	8S1	1092A	6S75	

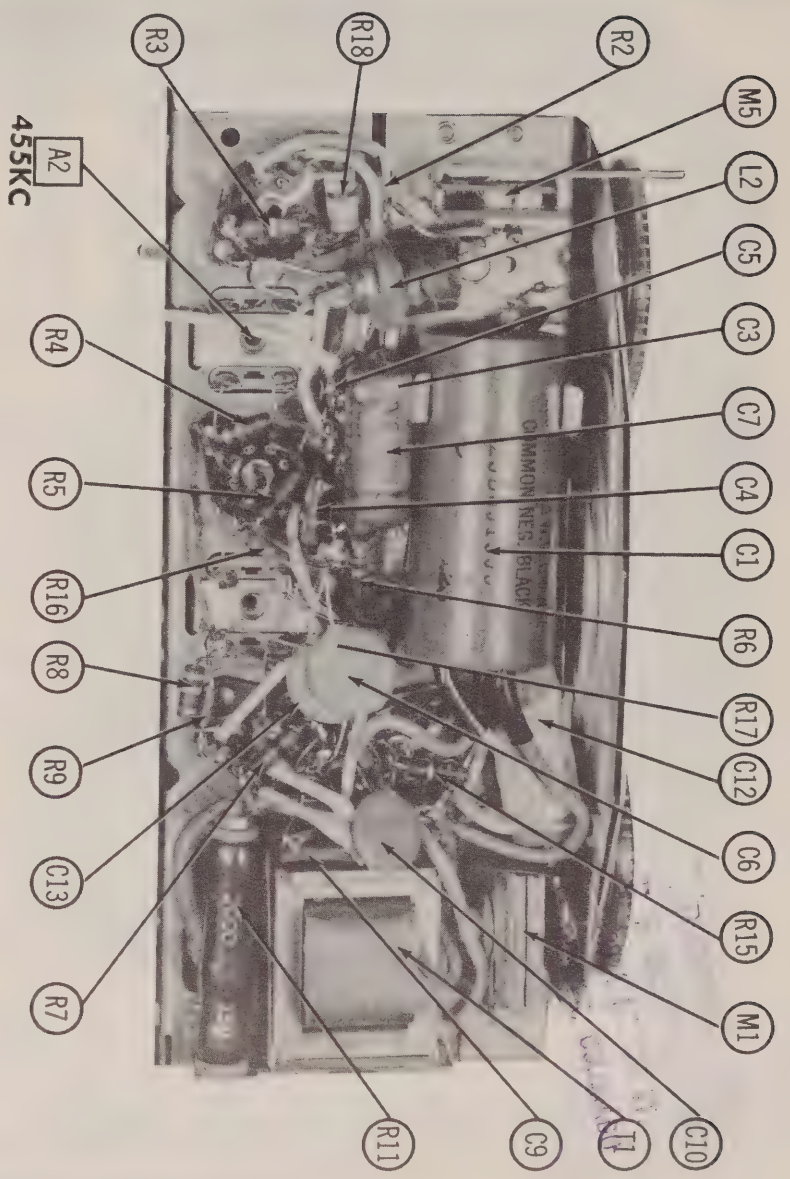
BATTERIES

ITEM No.	VOLTAGE	PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2 M3	1.5V. 67.5		950	467		2R	XX45		2 used in series

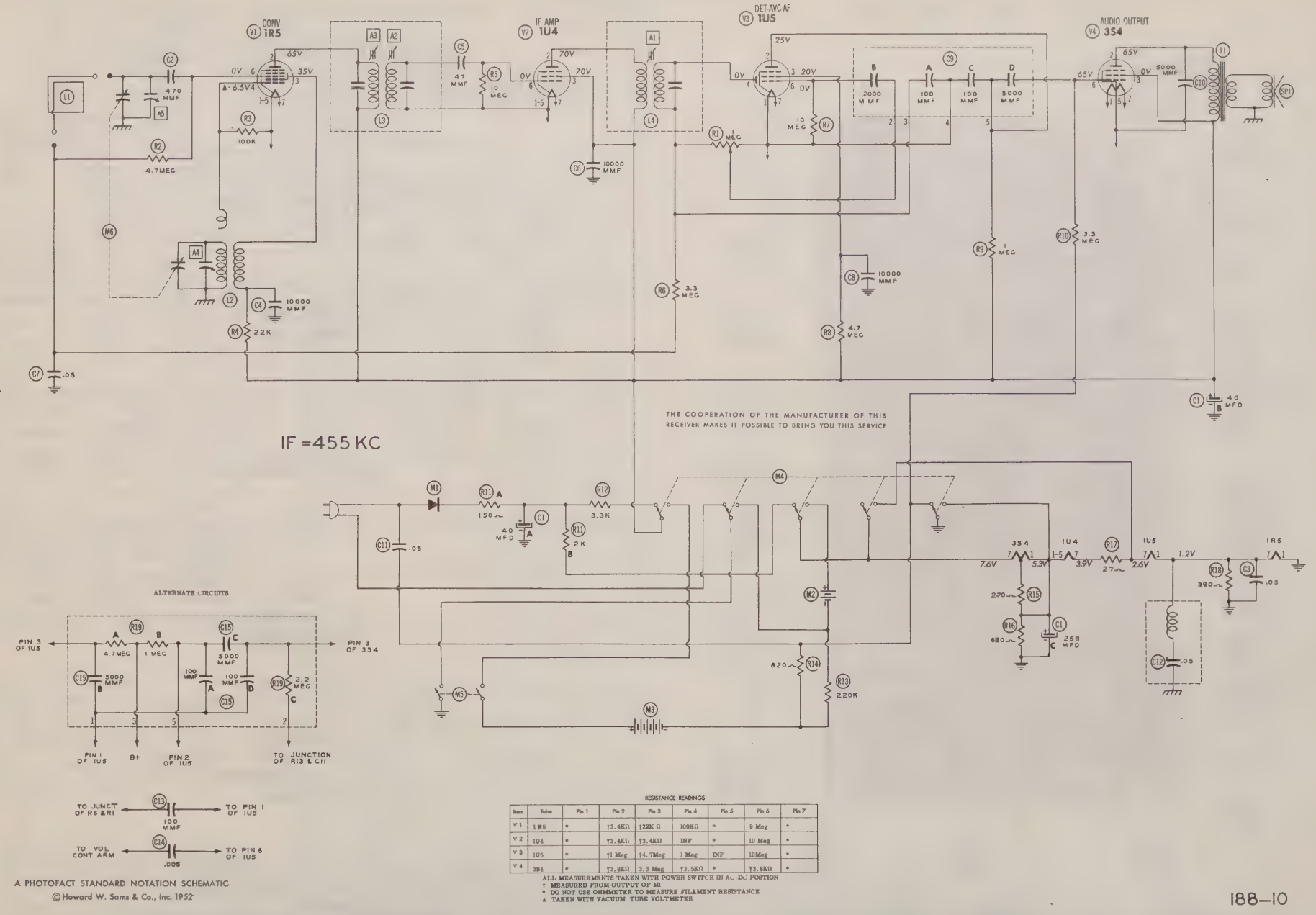
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Switch	40B471927	5PDT Rotary (Power CHANGE-OVER)
M5	Switch	40K601702	Slide Switch (On/Off)
M6	Tuning Capacitor	19K692007	(15-410MMF, 16-162MMF)
	Cabinet	1X610664	Green (Less handle, grille, loop and front cover) Mod. 52M1U
	Cabinet	1X610681	Maroon (Less handle, grille, loop and front cover) Mod. 52M2U
	Cabinet	1X611139	Gray (less handle, grille, loop and front cover) Mod. 52M3U
	Front Cover Assy.	1X610667	Green plastic (Less loop) Mod. 52M1U
	Front Cover Assy.	1X610684	Maroon plastic (Less loop) Mod. 52M2U
	Front Cover Assy.	1X611254	Gray plastic (Less loop) Mod. 25M3U
	Grille Assy.	1X610668	Complete
	Knob	36C601724	Tuning control
	Knob	36K601725	Volume control

CHASSIS—BOTTOM VIEW



MOTOROLA MODEL 52MIU (Ch. HS-300)


CONV 1R5
IF AMP 1U4
DET-AVC-AF 1U5
AUDIO OUTPUT 3S4
IF =455 KC
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
ALTERNATE CIRCUITS
PIN 3 OF 1U5
PIN 3 OF 3S4
PIN 1 OF 1U5
B+
PIN 2 OF 1U5
TO JUNCTION OF R13 & C11
TO JUNCT OF R6 & R1
TO PIN 1 OF 1U5
TO VOL CONT ARM
TO PIN 6 OF 1U5

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†3.4KΩ	†22K Ω	100KΩ	*	9 Meg	*
V 2	1U4	*	†3.4KΩ	†3.4KΩ	INF	*	10 Meg	*
V 3	1U5	*	†1 Meg	†4.7Meg	1 Meg	INF	10Meg	*
V 4	3S4	*	†3.8KΩ	3.3 Meg	†3.5KΩ	*	†3.8KΩ	*

ALL MEASUREMENTS TAKEN WITH POWER SWITCH IN AC-DC POSTION
† MEASURED FROM OUTPUT OF M1
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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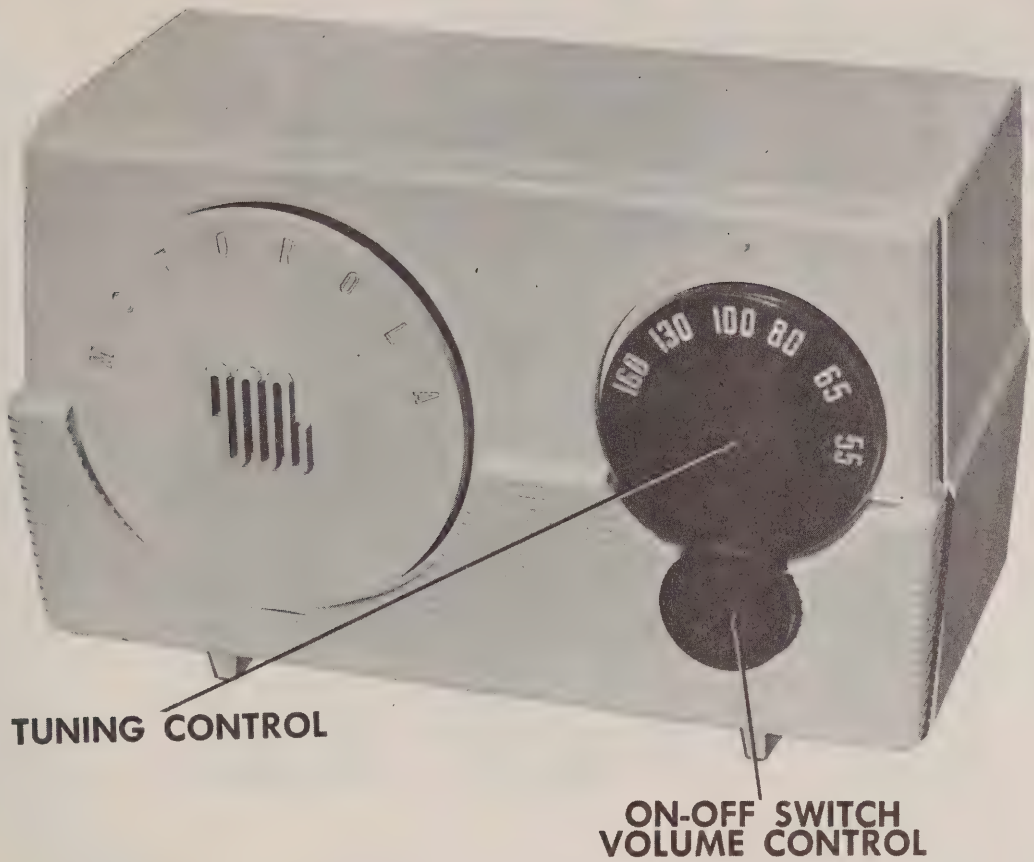
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA MODELS 52R11, 52R12, 52R13, 52R14, 52R15, 52R16 (Ch. HS-289)



MOTOROLA MODELS 52R11, 52R12, 52R13, 52R14, 52R15, 52R16 (Ch. HS-289)

MOTOROLA MODEL 52R14

TRADE NAME	Motorola Models 52R11, 52R12, 52R13, 52R14, 52R15, 52R16 (Ch. HS-289)
MANUFACTURER	Motorola, Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	AC/DC Operated AM Superheterodyne Receiver of Printed Circuit Design
TUBES (Five)	Types 12BE6 Conv., 12BD6 IF Amp., 12AT6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC/DC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1) Low side to B-.	455 KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620 KC	"	"	A5	"
3.		Loop	1400 KC	Tune to 1400 KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BD6	12BD6	7BK	
V3	Det-AVC-AF Amp	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7C5	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150	23B610627	PRS150/50-30		BRD5315		TCD497	TVA-2450	
B	30	150								
C2	.05	200	8R9821	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	220		21R115905	SI220	D6-221	5W5T25	G P2K-221	UC-5322	5GA-T22	
C4	10000		21R482726	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C5	220		21R115905	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C6	10000		21R482726	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C7	.01	200	8R9801	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C8	.074	400	8R490232	489ZGXY-05		PJ4S5		PT415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1 Meg	1/2	18A601857	Q13-137	AG-63-Z	BSK-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

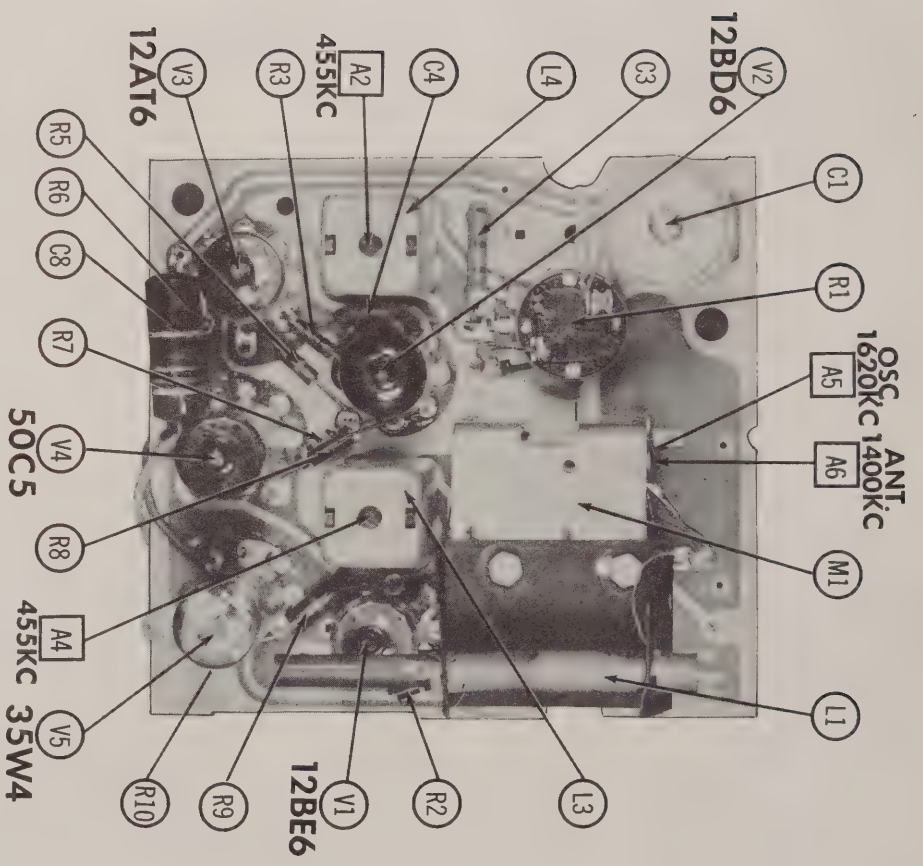
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R2	22KΩ	1/2	6R6028	BTS-22K	
R3	100Ω	1/2	6R6018	BTS-100	
R4	3.3Meg	1/2	6R2118	BTS-3.3Meg	
R5	10 Meg	1/2	6R2109	BTS-10 Meg	
R6	470KΩ	1/2	6R6032	BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R7	470KΩ	1/2	6R6032	BTS-470K	
R8	150Ω	1	6R3992	BTS-150	
R9	1000Ω	1	6R3953	BTA-1000	Note
R10	33Ω	1/2			

Note Some models use a 27Ω resistor in this applicaton.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.7KΩ	3.1Ω	248Ω	.44Ω	Part of Spkr.	A-3332	A-3025			

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.1Ω	50K620141 50K620142 ①	ST-113 Mod. P4-X	4A07	① Alternate speaker

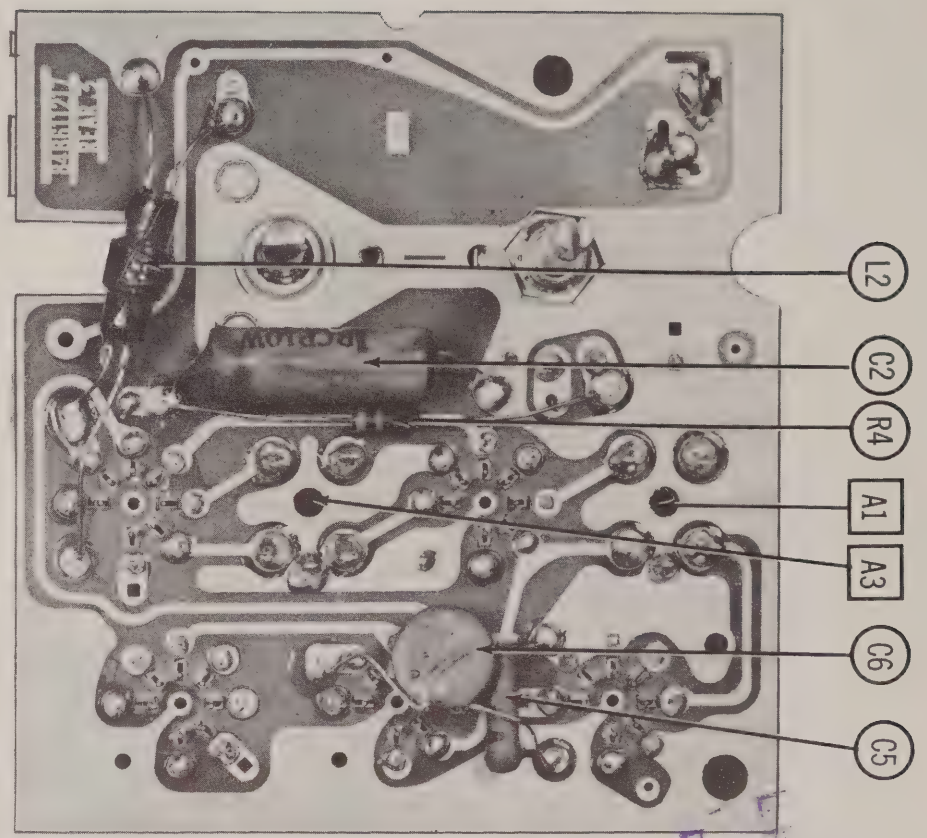
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L1	Loop Ant.	3.4Ω		24A610646		
L2	Osc, Soil	12Ω		24A620875		Tapped@ 11Ω
L3	Input If	18.5Ω	17.5Ω	24K610639	BC-352	
L4	Output IF	18.5Ω	17.5Ω	24K610639	BC-353	

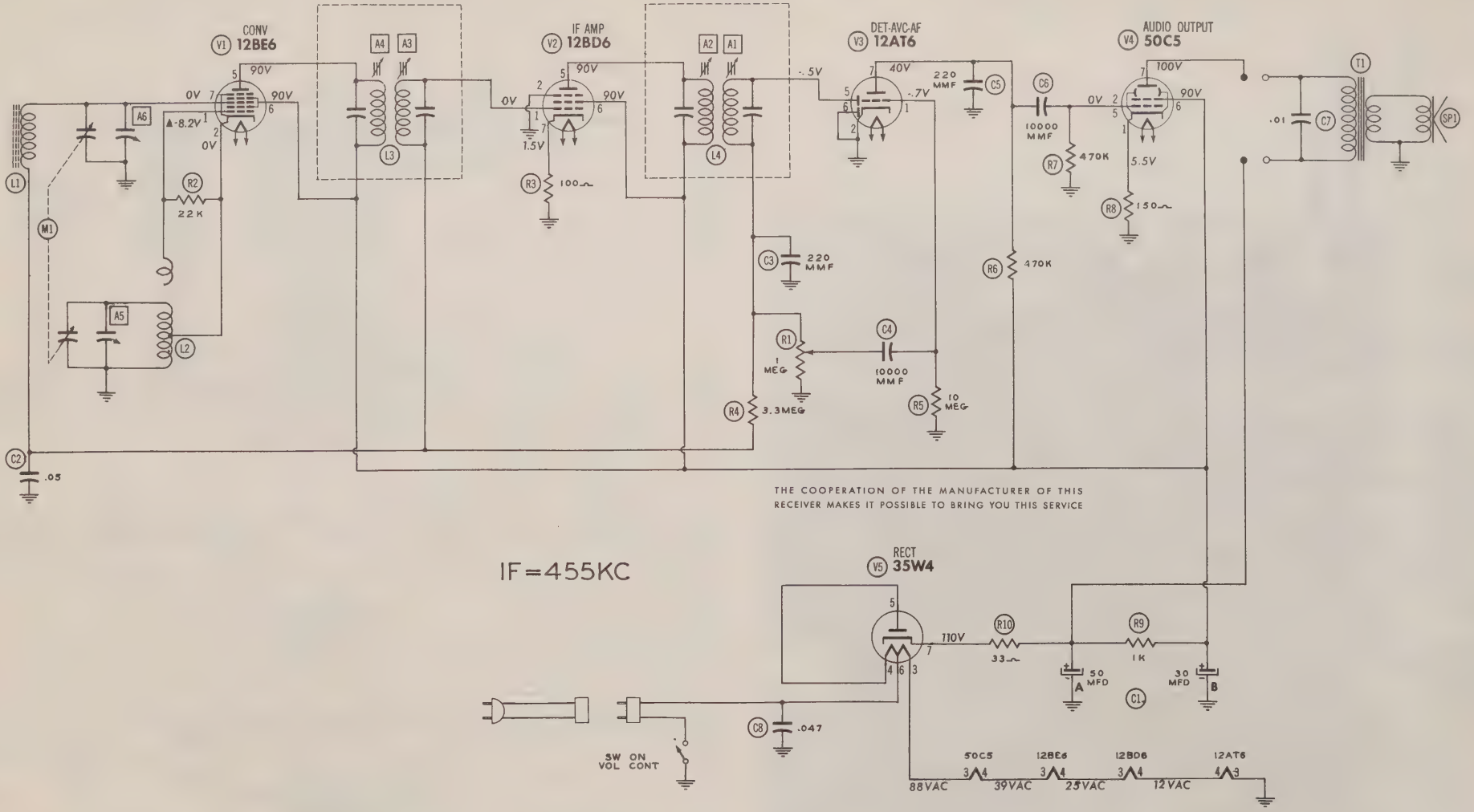
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Tuning Capacitor-	19B610626	(12-310MMF, 5-175MMF)
	Cabinet	16C611255	Walnut Model 52R11
	Cabinet	16K611256	Ivory Model 52R12
	Cabinet	16K611258	Maroon Model 52R13
	Cabinet	16K611259	Gray Model 52R14
	Cabinet	16K611260	Green Model 52R15
	Cabinet	16K611261	Red Model 52R16
	Line Cord	30K610638	With plug and receptacle.
	Back Cover	1X610655	Including line cord.
	Speaker Cover	15K620103	Walnut Model 52R11
	Speaker Cover	15K620104	Ivory Model 52R12
	Speaker Cover	15K620105	Maroon Model 52R13
	Speaker Cover	15K620106	Gray Model 52R14
	Speaker Cover	15K620107	Green Model 52R15
	Speaker Cover	15K620108	Red Model 52R16
	Knob	36K611308	Tuning (Black) all models except 52R12,
	Knob	36K620090	Tuning (Ivory) Model 52R12
	Knob	36K620156	Volume Control (Black) all models except 52R12.
	Knob	36K610642	Volume Control (Ivory) Model 52R12

CHASSIS—BOTTOM VIEW



DENVER, COLORADO



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF=455KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	11Ω	36Ω	24Ω	†1KΩ	†1KΩ	4.3Meg
V 2	12BD6	4.3Meg	0Ω	24Ω	12Ω	†1KΩ	†1KΩ	100Ω
V 3	12AT6	10 Meg	0Ω	0Ω	12Ω	1 Meg	0Ω	†470KΩ
V 4	50C5	150Ω	470KΩ	86Ω	36Ω	470KΩ	†1KΩ	†265Ω
V 5	35W4	900KΩ	INF	88Ω	121Ω	121Ω	104Ω	900KΩ

† MEASURED FROM PIN #7 OF V5.
▲ TAKEN WITH VACUUM VOLTMETER

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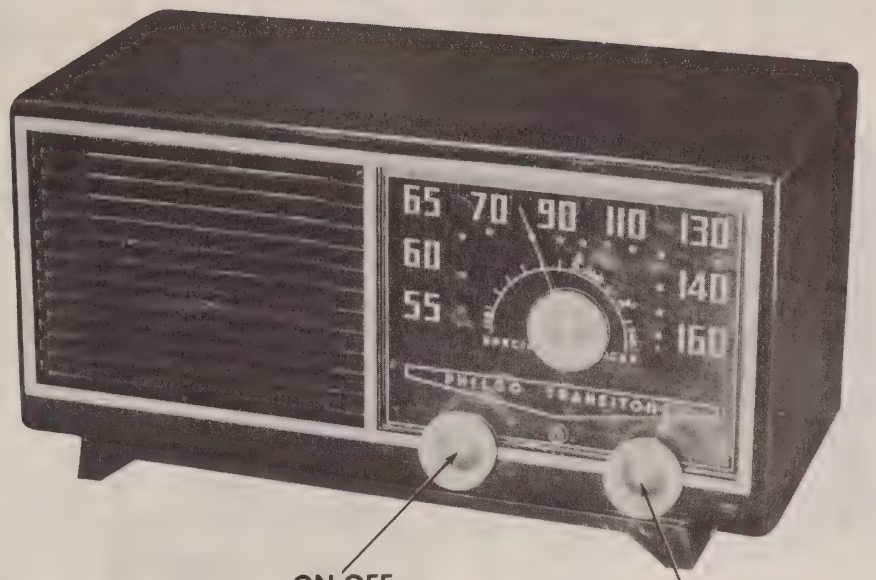
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHILCO MODELS
53-561, 53-562, 53-564



PHILCO MODELS
53-561, 53-562, 53-564

PHILCO MODEL 53-562

TRADE NAME	Philco Models 53-561, 53-562, 53-564
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC-DC Operated Two Band AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 35C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-DC
RATING	.23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620 KC
SHORT WAVE	1700 KC-3400KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdrive for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455 KC (400% Mod)	BC	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620 KC	"	1620 KC	"	A5	To set tuning gang to 1620 KC, first fully open tuning gang, then insert a .006 inch non-metallic shim between the heel of the rotor and top of the stator plates. Close tuning gang to just t ouch the shim and remove shim without disturbing setting. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500 KC	"	Tune for maximum output.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	3200KC	Special Services	3200 KC	"	A7	"

To set pointer close tuning gang and set pointer parallel with base of dial at low frequency end.

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PARTS LIST AND DESCRIPTIONS

PHILCO
MODEL 53-561

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	35C5	35C5	7CV	
V5	Rectifier	35W4	35W4	7BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	30	150	30-2575-34	PRS150/40-20-20		EDL32V-215		TN129	TVA-3444	Orange
B	25	150								Red
C	20	150								Blue
C2	994	500	45-3505-47							
C3	47		30-1230-4	SI47	D6-470	5R5Q5	GP1K-470	UC-5447	5GA-Q47	
C4	7.5		30-1224-83							
C5	.05	200	45-3505-38	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C6	.05	200	45-3505-38	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C7	5000		30-1238-1	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C8A	.005									
B	250		♦30-6001		♦PC-70		♦1406-01		♦104C4	
C										
C9	.022	400	45-3505-43	P488-022	DF-203	PTE4S22		PT4122	4TM-S22	
C10	.047	400	45-3505-62	489ZGXY-05		PJ4S5		PT4147	4TM-S47	
C11	.1	400	45-3505-47	P488-1		PTE4P1		PT401	4TM-P1	
C12	220	500		1468-00025	D6-221	5W5T25	GP2K-221	MC240	1FM-325	Note 1

Note 1. Not used in all Models.
♦ Items C8A, C8B, C8C, R7A, R7B are combined in one unit.
When replacing items separately, C8B and C8C should total 250MMF.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	33-5566-41	Q13-133	AG-60-Z	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	22KΩ	½	66-3228340	BTS-22K	
R3	4700Ω	½	66-2748340	BTS-4700	
R4	2.2Meg	½	66-5228340	BTS-2.2Meg	
R5	47KΩ	½	66-3478340	BTS-47K	
R6	10 Meg	½	66-6108340	BTS-10 Meg	
R7A	500KΩ	½	▲30-6001		
B	500KΩ	½			

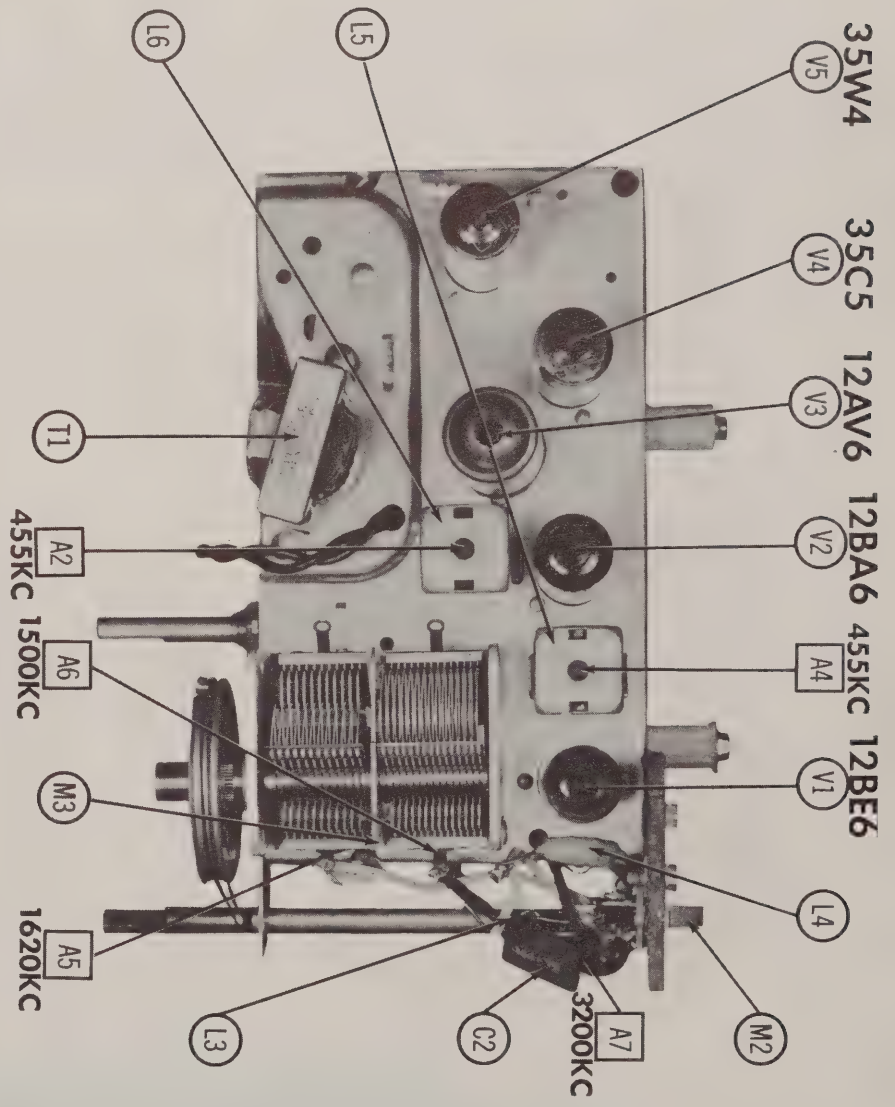
ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R8	150Ω	½	66-1558340	BTS-150	
R9	220Ω	1	66-1224340	BTA-220	
R10	1000Ω	½	66-2108340	BTS-1000	
R11	*	*	33-1343-3		

* Special resistor -100Ω Hot, 880Ω Cold.
▲ Items R7A, R7B, C8A, C8B, C8C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA PHILCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.7KΩ	3.3Ω	220Ω	.8Ω	32-8384	A-3332	A-2928 ①	RO-301 ①	S-1X ①	① Drill one new mtg. hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.3Ω	36-1627-5	ST-113 Mod P4-X	4A1	

COILS (RF-IF)

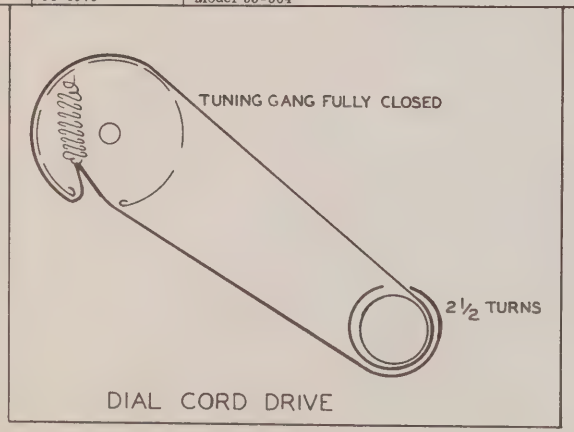
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	PHILCO PART No.	MERIT PART No.	
L1	Loop Ant.	3.2Ω		76-7718		
L2	BC Osc. Coil	1.2Ω	7.5Ω	32-4453-6		
L3	SW Ant. Coil	1.1Ω		32-4561-3		
L4	SW Osc. Coil	3Ω		32-4562-2		
L5	Input IF	15Ω	15Ω	32-4161A	BC-352	
L6	Output IF	15Ω	15Ω	32-4240A	BC-355	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					PHILCO PART No.		
M1	Bayonet	6-8	.15	Brown	34-2068		Type #47

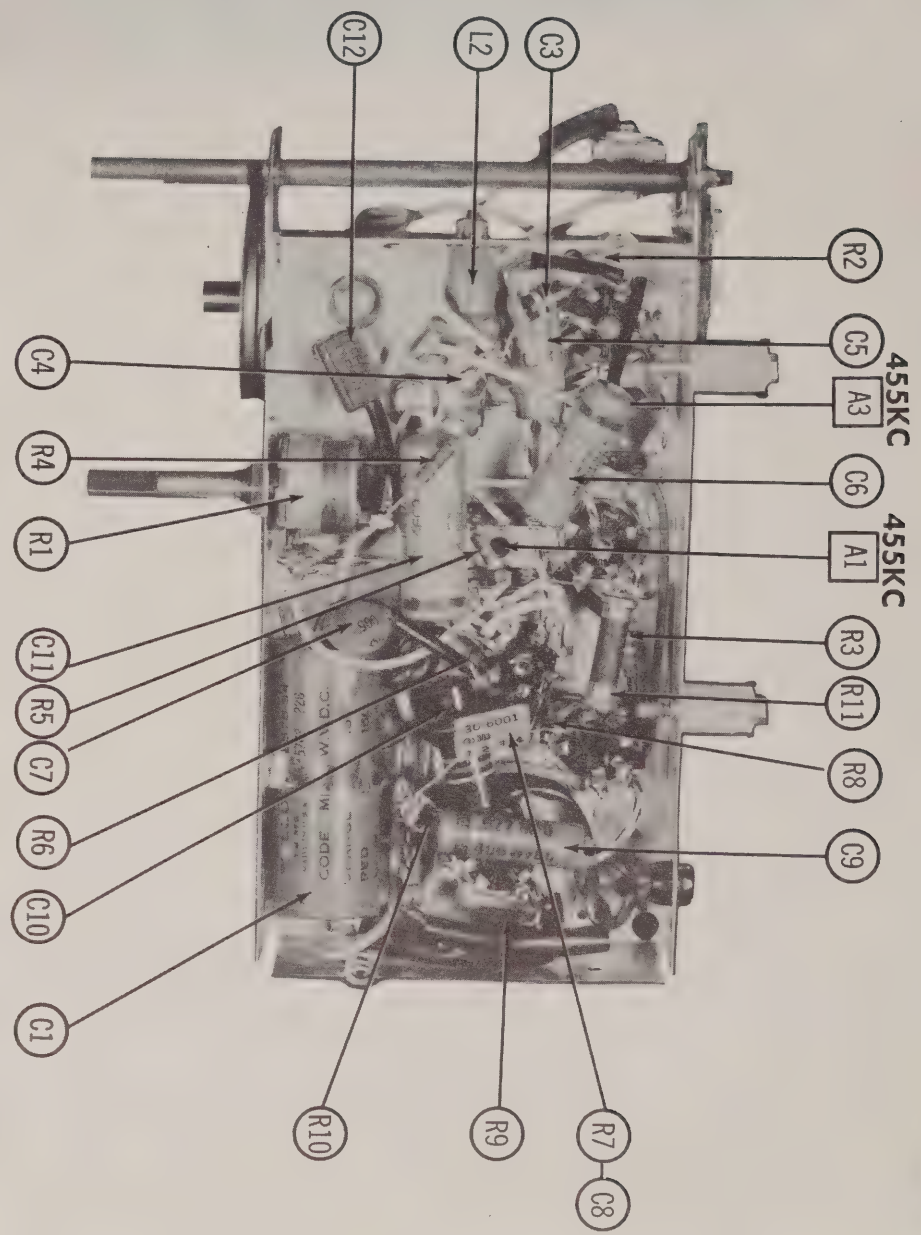
MISCELLANEOUS

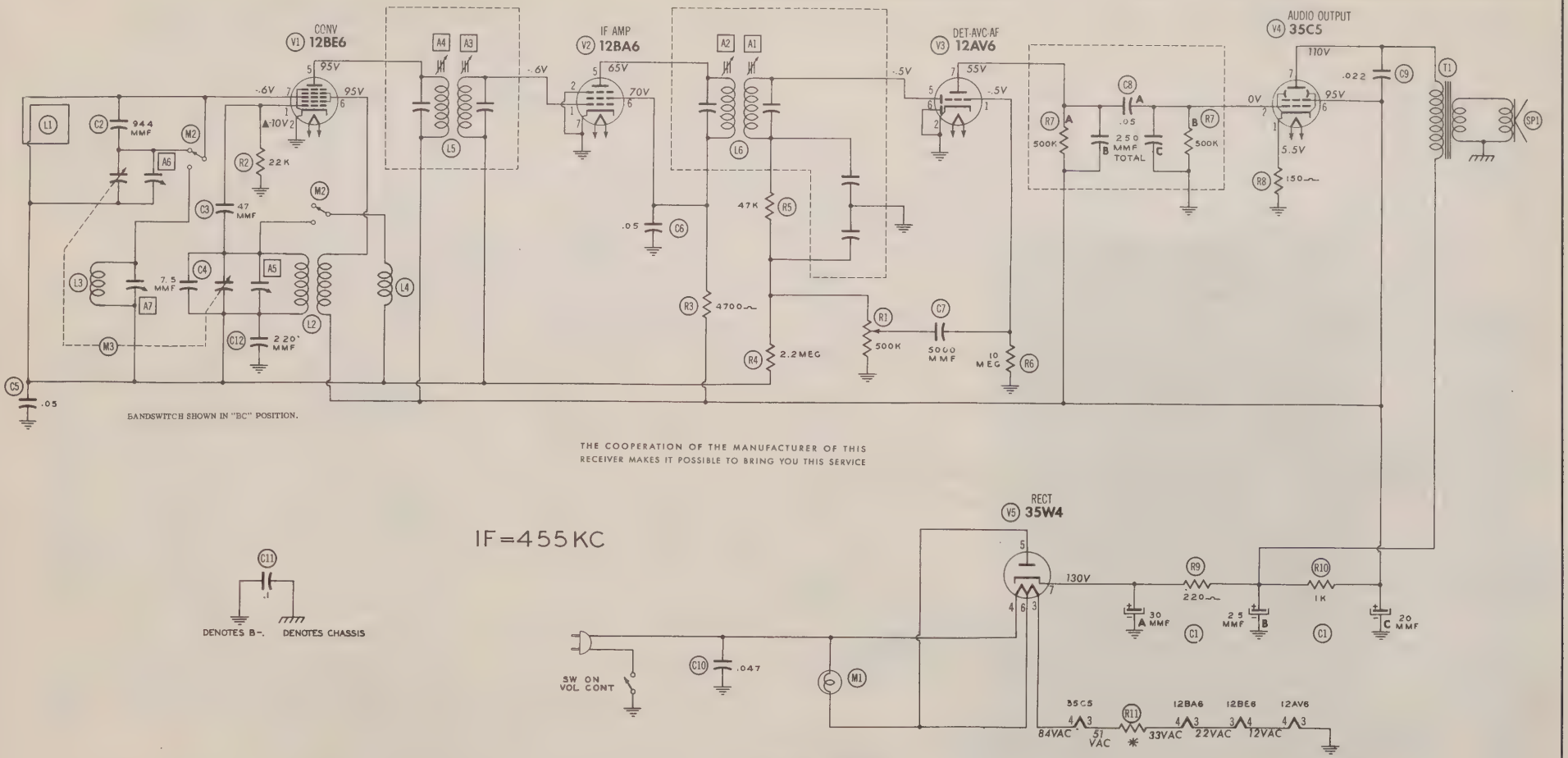
ITEM No.	PART NAME	PHILCO PART No.	NOTES
M2	Switch	42-1796-2	Band Switch
M3	Tuning Capacitor	31-2751-14	14-483MMF , 9-170MMF
	Cabinet	10925-1	Ivory Model 53-561
	Cabinet	10925-3	Maroon Model 53-561
	Cabinet	10925-5	Colonial Green Model 53-561
	Cabinet	10925-7	Light Beige Model 53-561
	Cabinet	10926-3	Maroon Model 53-562
	Cabinet	10926-5	Forest Green Model 53-562
	Cabinet	10926-7	Tangerine Model 53-562
	Cabinet	10926	Ivory Model 53-562
	Cabinet	10927-1	Maroon Model 53-564
	Back & Loop Assy.	76-7718	Model 53-561
	Back & Loop Assy.	76-7759	Model 53-562
	Back & Loop Assy.	76-7769	Model 53-564
	Knob	54-4980-1	2 Used Model 53-561
	Knob	54-4773-3	2 Used Model 53-562
	Knob	54-4982	2 Used Model 53-564
	Pointer (dial)	54-4981	Model 53-561
	Pointer (dial)	56-9834	Model 53-562
	Pointer (dial)	54-4979	Model 53-564



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF=455KC

C11 .1
DENOTES B-. DENOTES CHASSIS

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	0Ω	24Ω	12Ω	†1.22KΩ	†1.22KΩ	2.7Meg
V 2	12BA6	2.7 Meg	0Ω	24Ω	36Ω	†5.9KΩ	†5.9KΩ	0Ω
V 3	12AV6	10 Meg	0Ω	0Ω	12Ω	547KΩ	0Ω	†500KΩ
V 4	35C5	150Ω	500KΩ	920Ω	955Ω	INF	†1.22KΩ	†440Ω
V 5	35W4	†220Ω	†220Ω	955Ω	990Ω	987Ω	987Ω	500KΩ

† MEASURED FROM PIN #7 OF V5.
▲ TAKEN WITH VACUUM TUBE VOLTMETER
ALL MEASUREMENTS TAKEN WITH BAND SWITCH IN "BC" POSITION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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188–12

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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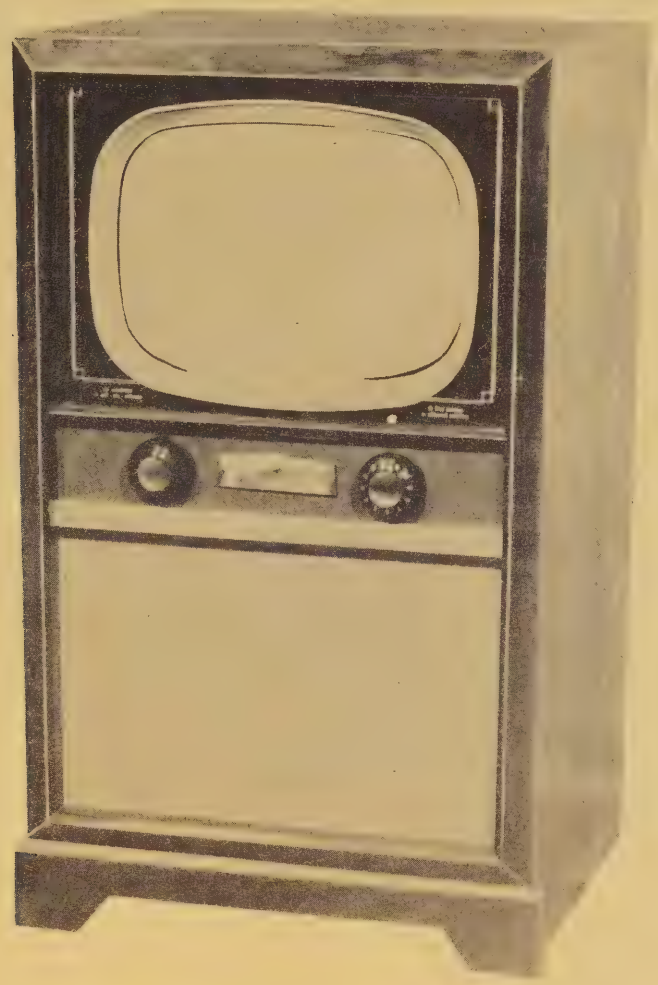

MODEL 2D1235A

TRUETONE MODEL
2D1235A (Ch. 17MS34S)

HOWARD W. SAMS & CO., INC. • Indianapolis, Indiana

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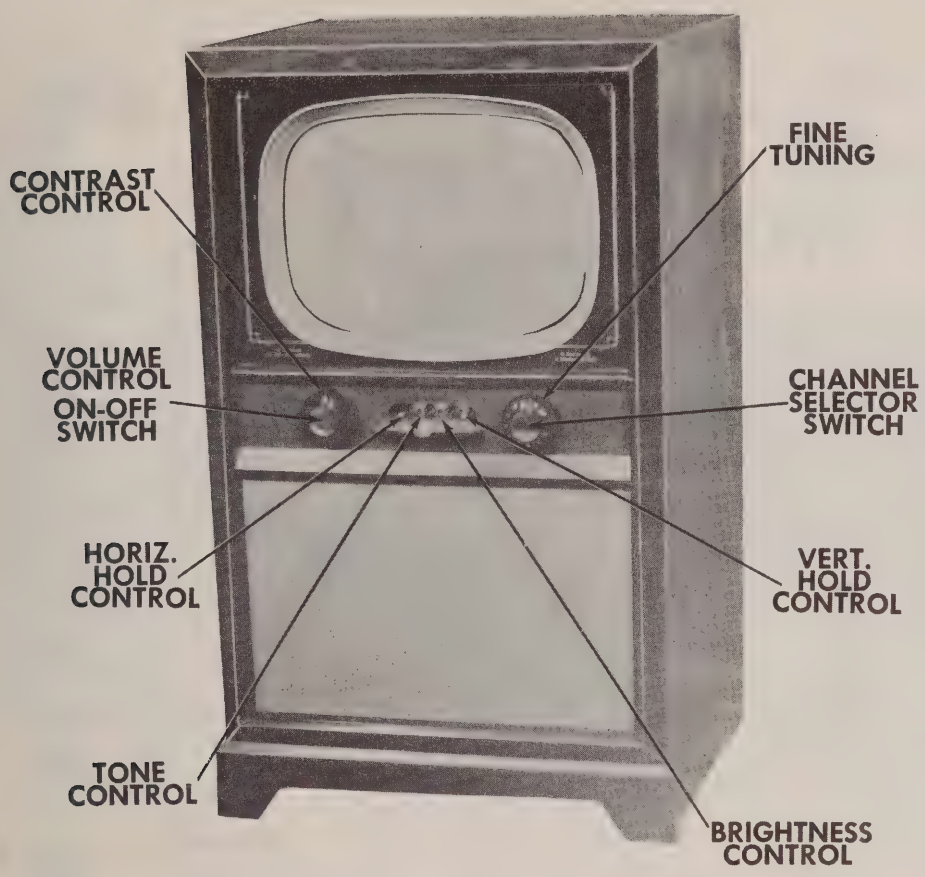
DATE 12-52 SET 188 FOLDER 13

TRUETONE MODEL 2D1235A (Ch. 17MS34S)



TRADE NAME	Truetone Model 2D1235A (Ch. 17MS34S)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Twenty Three
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.8 Amp @ 1117 Volts AC
TUNING RANGE-	Channel 2 thru 13

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TRUETONE MODEL 2D1235A (Ch. 17MS34S)

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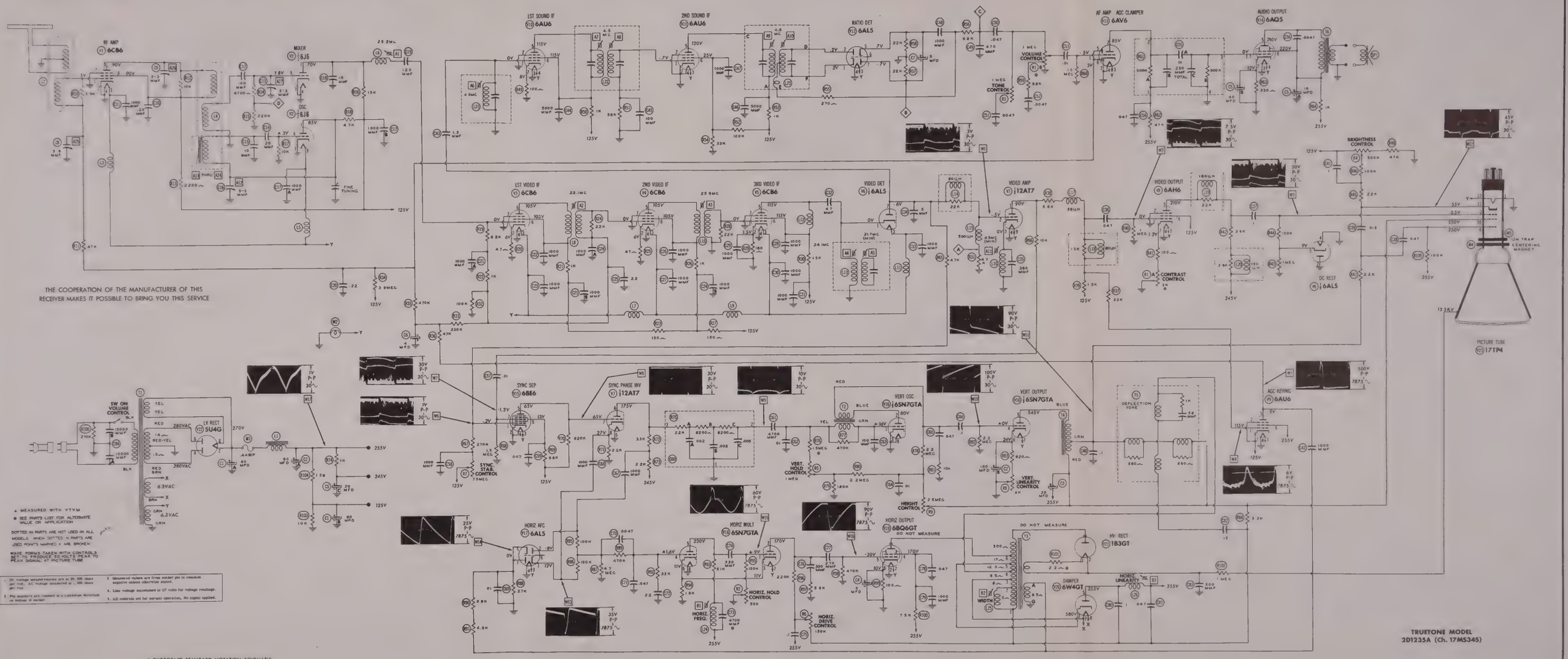

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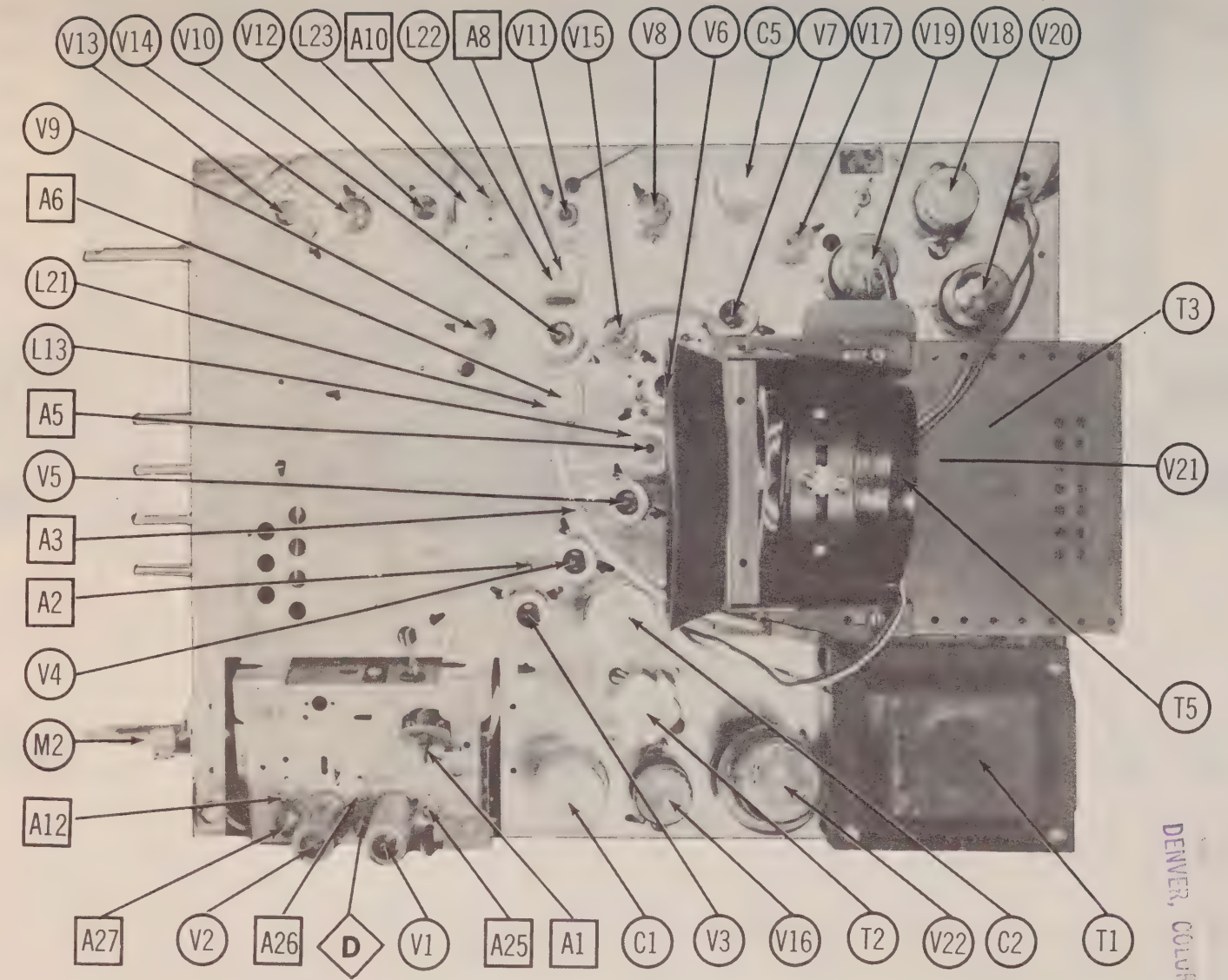
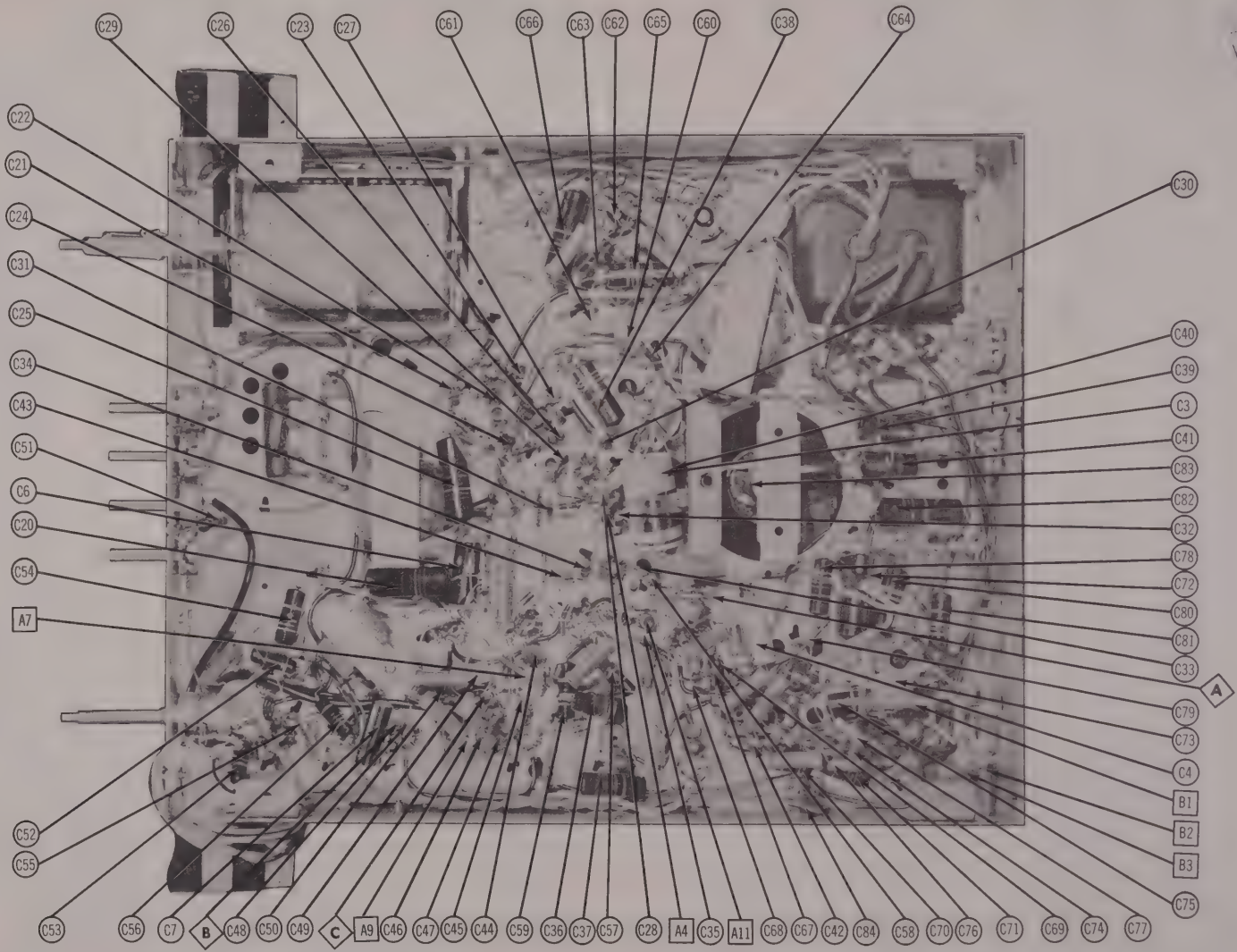


CHASSIS TOP VIEW

TRUETONE MODEL
2D1235A (Ch. 17MS345)

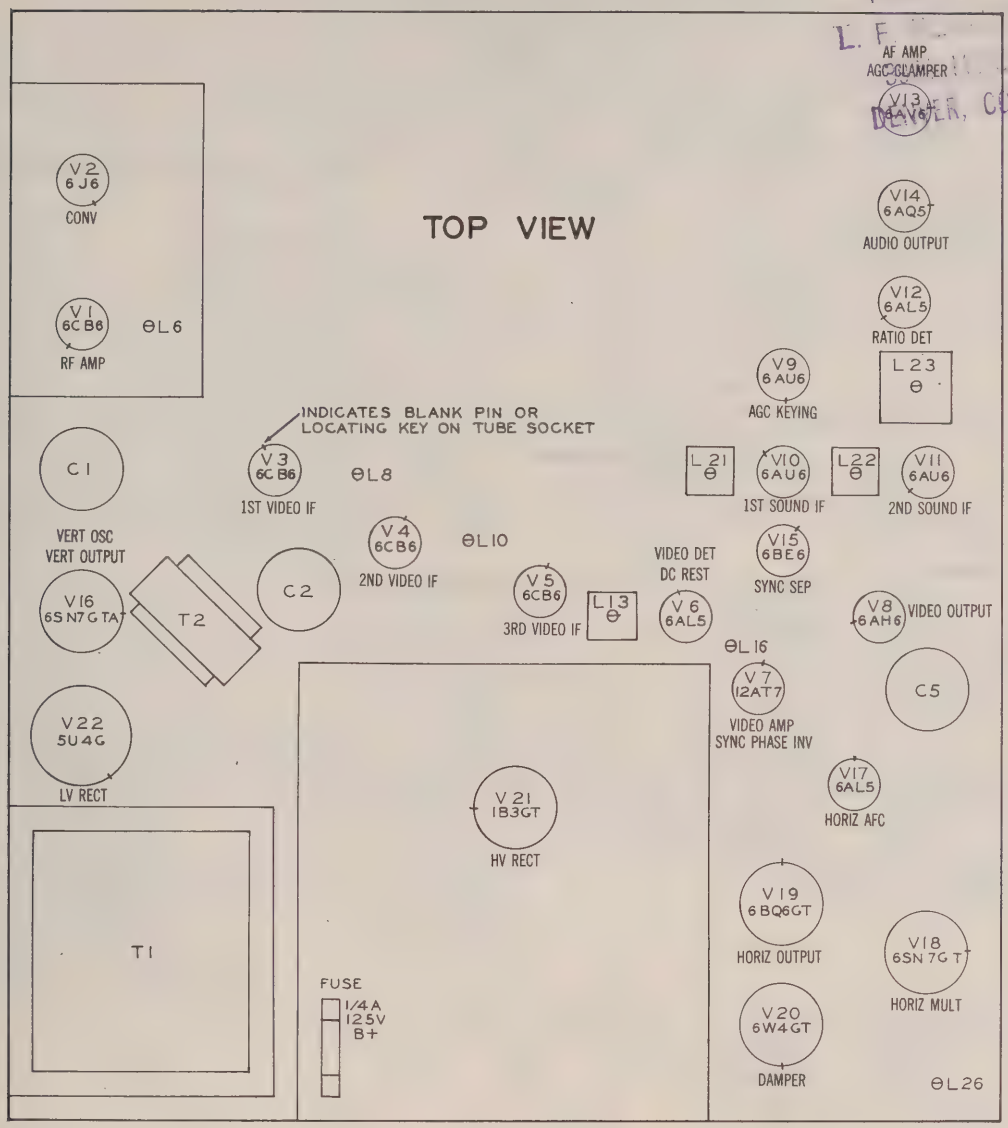
DENVER, COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TRUETONE MODEL
2D1235A (Ch. 17MS345)

TUBE PLACEMENT CHART



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TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound-V22 Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster-V2, V3, V4, V5, V6
No pic, no sound, has snow-V1, V2, V3
No pic, has sound, has raster-V7, V8, V23
Has pic, no sound-V10, V11, V12, V13, V14
Overloaded picture-V9, V13

SYNC FAILURE
No vert. sync-V7, V16
No horiz. sync-V7, V17, V18
No vert. or horiz. sync-V7, V15

SWEEP FAILURE
No raster, has sound-V18, V19, V20, V21, V23
No vertical deflection -V16
Poor vert. linearity or foldover-V16
Poor horiz. linearity or foldover-V18, V19, V20
Narrow picture-V18, V19, V20, V21, V22
Vert. off freq. -V7, V16
Horiz. off freq. -V7, V17, V18

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal multivibrator tube (V18).

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 4.5 volt battery to the ungrounded side of C20. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.2MC (Unmod.)	Any	DC probe to point (A). Common to chassis.	A1	Adjust for maximum deflection. Attenuate generator to maintain less than 2 volts at VTVM.
2.	"	"	23.1MC	"	"	A2	"
3.	"	"	25.9MC	"	"	A3	"
4.	"	"	24.1MC	"	"	A4	"
5.	"	"	21.7MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	27MC (10MC Swp)	21.7MC 23.0MC 23.5MC 25.25MC 26.2MC	Any	Vert. Amp. to point (A). Low side to chassis.		Check for response similar to fig. 1. If necessary, readjust A1 thru A4 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to pin 7 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B). Common to chassis	A6, A7 A8, A9	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point (C). Common to chassis	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to pin 7 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A6, A7 A8, A9	Disconnect stabilizer capacitor C7. Adjust for curve of maximum amplitude and symmetry as in fig. 2.
8.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A10	Reconnect capacitor C7. Adjust so that 4.5MC occurs at center of crossover lines as in fig. 3. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

Set contrast control at maximum contrast.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001MFD	High side to pin 7 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to pin 2 (grid) of picture tube common to chassis.	A11	Short pin 1 (grid) of 6CB6 (V5) to chassis. Adjust for MINIMUM deflection.

OSCILLATOR ALIGNMENT

Remove dummy converter tube and replace the original 6J6 in its socket. Move the negative lead of the 4.5 volt battery to junction of R19 and C21A. Positive lead remains connected to chassis.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A12. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel.
If adjustment of A12 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point (A). Low side to chassis	A13	Adjust to place sound marker in trap notch as in fig. 4. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A14	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A15	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A16	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A17	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A18	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A19	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A20	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A21	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A22	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A23	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A24	

ALIGNMENT INSTRUCTIONS (CONT.)

PROPERTY OF

RF AND MIXER ALIGNMENT

Remove the 4.5 volt bias battery and connect the negative lead of a 1.5 volt battery to the ungrounded side of C20. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp.)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point ◇D◇. Low side to chassis.	A25, A26 A27	Adjust for response similar to fig. 5.
12.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to fig. 5. IF markers fall below 70% on any channel make compromise adjustments of A25, A26 and A27 with channel switch set to that channel. Recheck all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

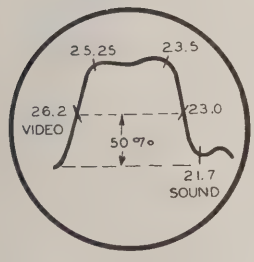


FIG. 1

FIG. 2

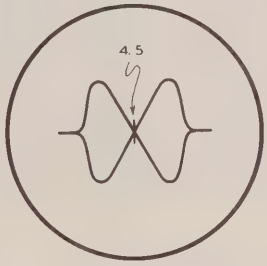


FIG. 3

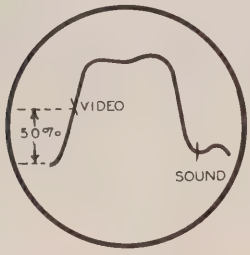


FIG. 4

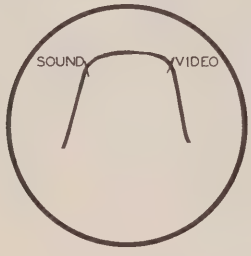
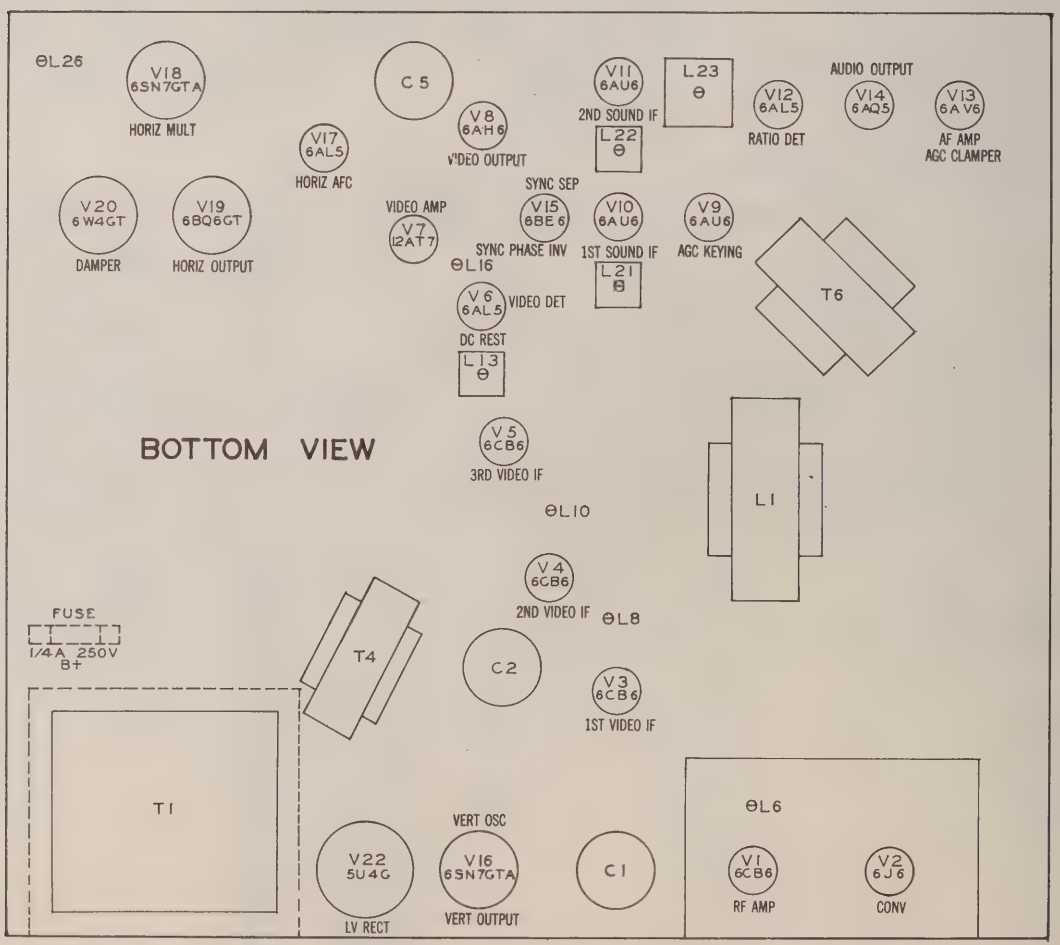


FIG. 5

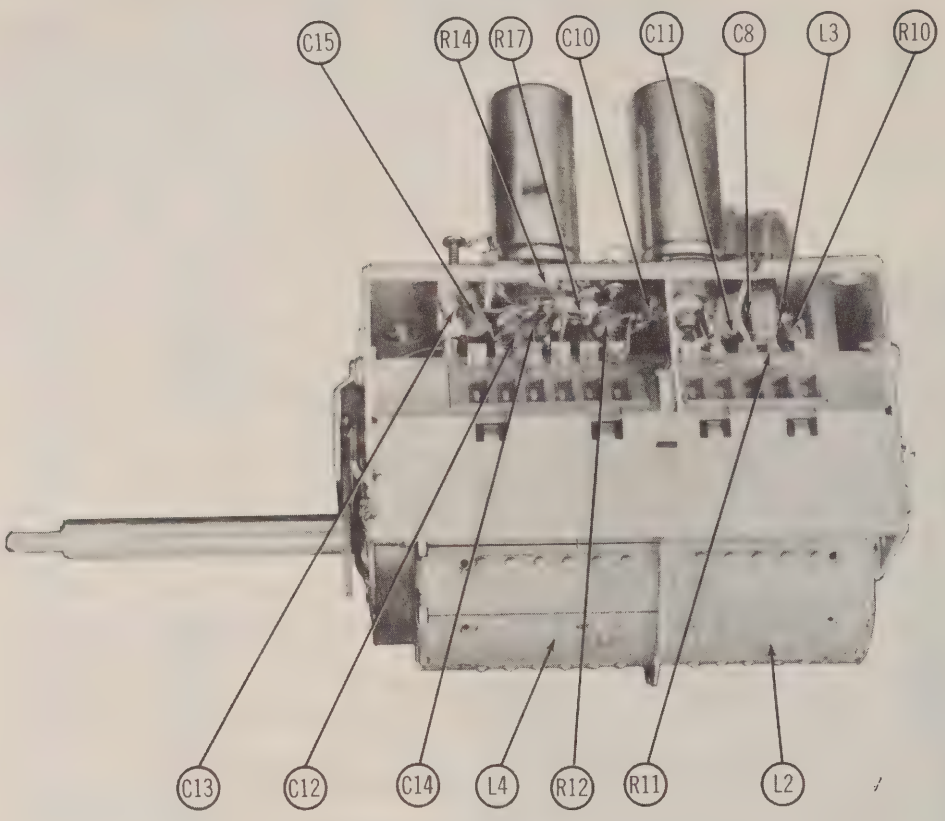
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6CB6	760KΩ	0Ω	.1Ω	0Ω	†3.8KΩ	†3.8KΩ	0Ω		
V 2	6J6	†6.3KΩ	†16.5KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6CB6	109KΩ	47Ω	.1Ω	0Ω	†2.9KΩ	†2.9KΩ	0Ω		
V 4	6CB6	100KΩ	47Ω	.1Ω	0Ω	†2.9KΩ	†2.9KΩ	0Ω		
V 5	6CB6	.2Ω	180Ω	.1Ω	0Ω	†3.1KΩ	†3.1KΩ	0Ω		
V 6	6AL5	.1Ω	0Ω	.1Ω	0Ω	1 Meg	0Ω	4.7KΩ		
V 7	12AT7	†8.7KΩ	4.7KΩ	.2Ω	0Ω	0Ω	†6.5KΩ	†820KΩ	2.2KΩ	.1Ω
V 8	6AH6	1 Meg	0Ω	.1Ω	0Ω	†4.9KΩ	†1.6KΩ	180Ω		
V 9	6AU6	†35KΩ	†1.6KΩ	.1Ω	0Ω	475KΩ	†45Ω	†1.6KΩ		
V 10	6AU6	2.5Ω	0Ω	0Ω	.1Ω	†2.6KΩ	†2.6KΩ	100Ω		
V 11	6AU6	56KΩ	0Ω	.1Ω	0Ω	†2.6KΩ	25KΩ	0Ω		
V 12	6AL5	INF	INF	.1Ω	0Ω	22KΩ	INF	22KΩ		
V 13	6AV6	10 Meg	0Ω	.1Ω	0Ω	720KΩ	720KΩ	†550KΩ		
V 14	6AQ5	470KΩ	330Ω	0Ω	.1Ω	†1.5KΩ	†1KΩ	470KΩ		
V 15	6BE6	51KΩ	0Ω	.1Ω	0Ω	†820KΩ	†68KΩ	1.5Meg		
V 16	6SN7GTA	2.6Meg	#3.7Meg	0Ω	2.2Meg	#4.8KΩ	2.6KΩ	.1Ω	0Ω	
V 17	6AL5	4.8Meg	4.8Meg	.1Ω	0Ω	8.8KΩ	INF	8.8KΩ		
V 18	6SN7GTA	160KΩ	#330KΩ	1.8KΩ	5.1Meg	†5.1KΩ	1.8KΩ	.1Ω	0Ω	
V 19	6BQ6GT	5.5KΩ	0Ω	INF	†7.5KΩ	470KΩ	#110KΩ	.1Ω	100Ω	Top Cap #17Ω
V 20	6W4GT	†45Ω	†100KΩ	600KΩ	5.1Meg	†60Ω	†45Ω	#21Ω	#21Ω	
V 21	1B3GT	PINS 1-8 HAVE INFINITE RESISTANCE								Top Cap #317Ω
V 22	5U4G	INF	11.5KΩ	INF	15Ω	1.8KΩ	14Ω	INF	11.5KΩ	
V 23	17TP4	0Ω	1.1Meg	Pin 6 †100KΩ	Pin 10 #3.3KΩ	Pin 11 220KΩ	Pin 12 .1Ω			

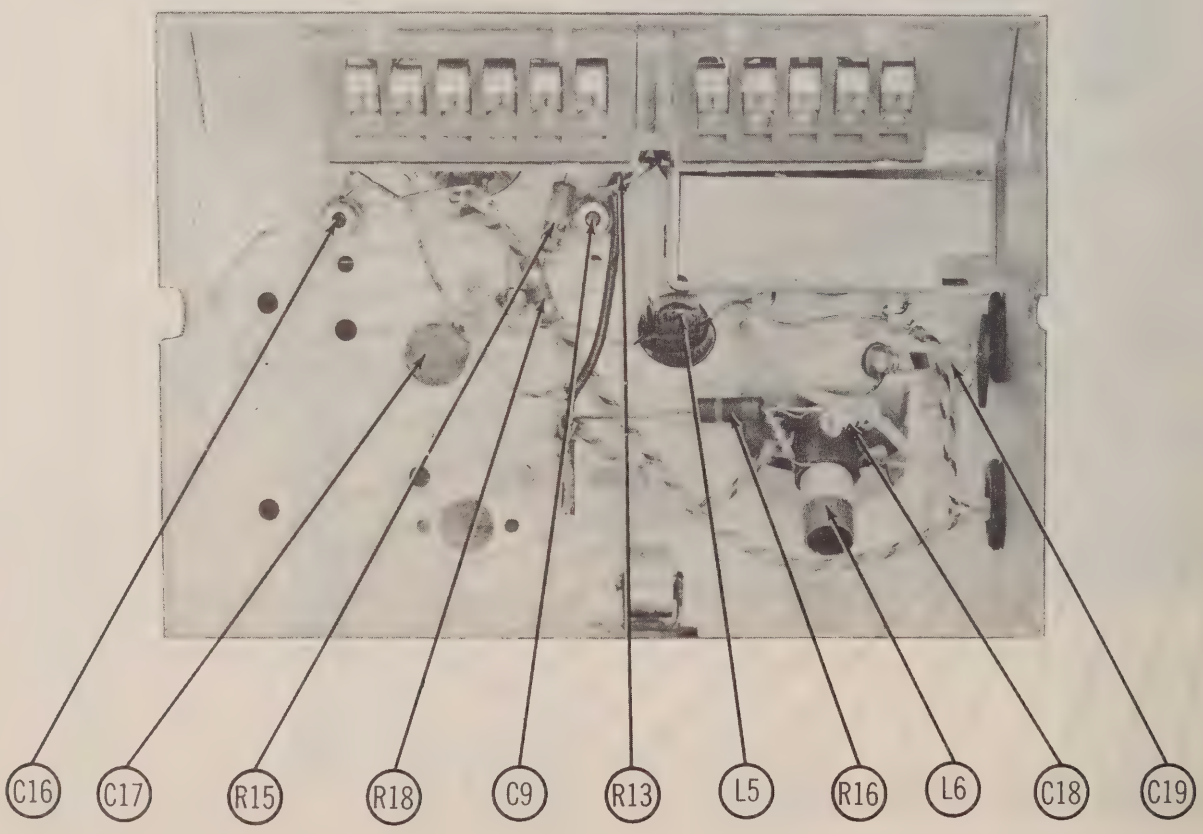
† MEASURED FROM PIN 2 OF V22
# MEASURED FROM PIN 3 OF V20



TUBE PLACEMENT CHART

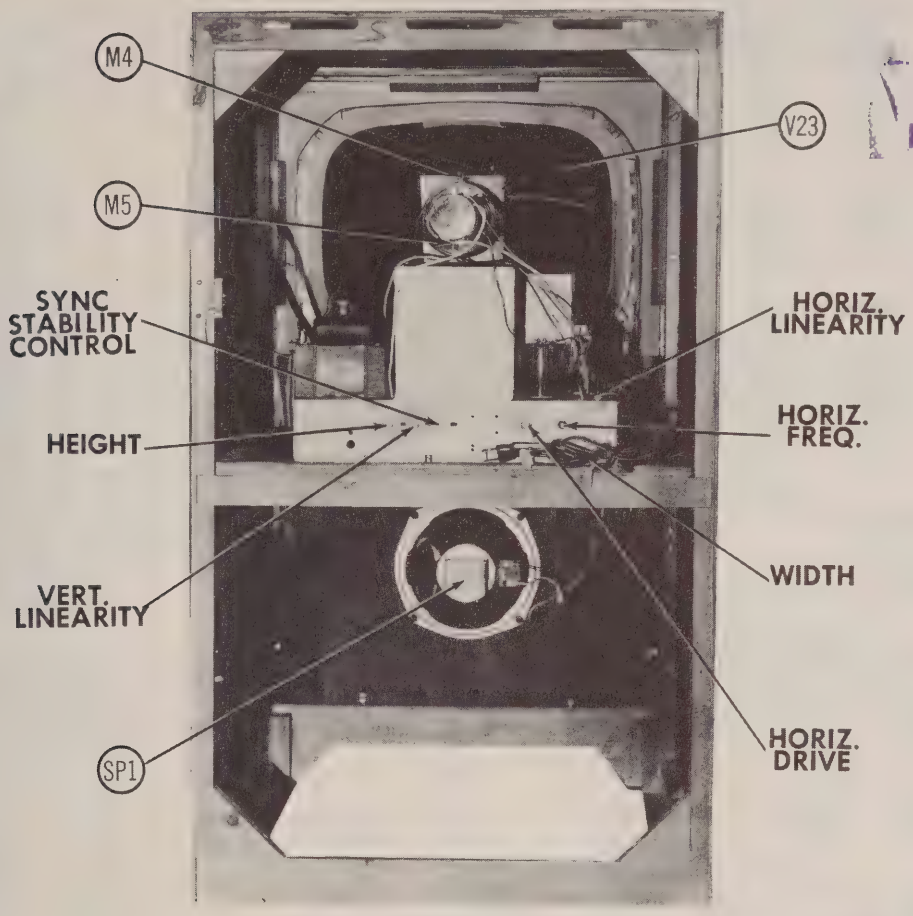


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

TUBE PLACEMENT CHART



3924 MEADE ST.
DENVER, COLORADO

CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (B1) until the picture is in sync.

Set the contrast control at minimum and advance the brightness control for normal brillance.

Adjust the width slug (B2) for a picture slightly wider than necessary to fill the picture mask.

Adjust the horizontal drive control in a clockwise direction as far as possible without the presence of vertical white lines in the picture.

Recheck adjustment of B1.

Adjust the horizontal linearity slug (B3) for picture that is symmetrical from left to right.

SYNC STABILITY CONTROL ADJUSTMENT

Starting from a fully counter clockwise position.

Adjust the control slowly clockwise until a minimum amount of picture bending occurs.

In weak signal areas set control for maximum picture stability.

DISASSEMBLY INSTRUCTIONS

① Remove 4 push on type control knobs from front panel.

② Remove 2 wood & 3 metal screws. Remove rear cover.

③ Disconnect built-in antenna & speaker.

④ Loosen 2 wood screws. Remove antenna bracket.

⑤ Remove 5 chassis bolts. Remove chassis.

⑥ Remove 4 speaker nuts. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINES ABOVE.

PARTS LIST AND DESCRIPTIONS (Continued)

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	6J8	6J8	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Detector - DC Restorer	6AL5	6AL5	6BT	
V7	Video Amplifier - Sync Phase Inv.	12AT7	12AT7	9A	
V8	Video Output	6AR6	6AR6	7BK	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	1st Sound IF Amp.	6AU6	6AU6	7BK	
V11	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V12	Ratio Detector	6AL5	6AL5	6BT	
V13	AF Amplifier - AGC Clamper	6AV6	6AV6	7BT	
V14	Audio Output	6AQ5	6AQ5	7BZ	
V15	Sync Seperator	6BE6	6BE6	7CN	
V16	Vert. Oscillator - Vert. output	6BN7GTA	6BN7GTA	8bD	
V17	Horiz. AFC	6AL5	6AL5	6BT	
V18	Horiz. Mult.	6BN7GTA	6BN7GTA	8bD	
V19	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V20	Damper	6W4GT	6W4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	2C	
V22	LV Rectifier	5U4G	5 U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V23	17TP4	17TP4	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	.05	300	45X397	AFH2-34		UP8850		FP227.6	TVL-3584	
B	.05	300								
C	.05	300	45X396	AFH3-183		UPT4445-V10		FP375	TVL-3722	
D	.100	50								
C3	30	400	45X392	PRS450/30		BR3045A		TC77	TVA-1711	
C4	35	35	45X378	PRS150/4		BR350		TC30	TVA-1203	
C5A	.10	300	45X399	AFH3-137		UPT2145-V5		FP366	TVL-3751	
B	40	50								
C	.20	300								
C6	4	100	45X361	PRH150/4		BR415		TC40	TVA-1402	
C7	5	25	45X378	PRH150/4		BR560		TC30	TVA-1203	
C8	.5-3		31B-207		829-10					
C9	.5-3		31B-206		829-3		CT55A			
C10	120			SU120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C11	1000			SH1000	D6-102	TM5D1	GP2L-102	UC-531	5HK-D1	
C12	1000			SH1000	D6-102	TM5D1	GP2L-102	UC-531	5HK-D1	
C13	.5-3		31B-206		829-3		CT55A			
C14	30			SI20NP0	TCZ-20		NP0K-200	ZT-548	5TCC-Q2	
C15	10			SH10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C16	.5-3		31B-206		829-3		CT55A			
C17A	1000		CD82X02E	BPD-2X001	DD-2-102	TM5DD1	81L-001	DC-531	5HK-2D1	
B	1000									
C18	10			SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C19	120			SU12N	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C20	.22	200	RCP10M2224M	P488-22		PT4EP22		PT4025	2TM-P22	
C21A	1000		80X3	BPD-2X001	DD-2-102	TM5DD1	81L-001	DC-531	5HK-2D1	
B	1000									
C22	1000		80X1	BPD-001	DD-102	TM5D1	81-001	DC-531	5HK-D1	
C23	1000		80X1	BPD-001	DD-102	TM5D1	81-001	DC-531	5HK-D1	
C24A	1000		80X3	BPD-2X001	DD-2-102	TM5DD1	81L-001	DC-531	5HK-2D1	
B	1000									
C25	.22	300	RCP10M2224M	P488-22		PT4EP22		PT4025	2TM-P22	
C26	1000		80X1	BPD-001	DD-102	TM5D1	81-001	DC-531	5HK-D1	
C27	1000		80X1	BPD-001	DD-102	TM5D1	81-001	DC-531	5HK-D1	
C28	1000		80X1	BPD-001	DD-102	TM5D1	81-001	DC-531	5HK-D1	
C29	1000		80X1	BPD-001	DD-102	TM5D1	81-001	DC-531	5HK-D1	
C30	1000		80X1	BPD-001	DD-102	TM5D1	81-001	DC-531	5HK-D1	
C31	1000		80X1	BPD-001	DD-103	TM5D1	81-001	DC-531	5HK-D1	
C32	47		47X803	SI47	D6-470		GP1K-470	UC-5447	5GA-Q47	
C33	1000		80X1	BPD-001	DD-102	TM5D1	81-001	DC-531	5HK-D1	
C34	5		47X562	SI5NP0	TCZ-4.7		NP0K-050	ZT-535	5TCCB-V47	
C35	360	500	47X568							
C36	.047	400	RCP10M4473M	P488-047	DF-503	PT4E47		PT4147	4TM-S47	
C37	.1	400	RCP10M4104M	P488-1	DF-104	PT4EP1		PT401	4TM-P1	
C38	.047	500	RCP10M4473M	P488-047	DF-503	PT4E047		PT4147	4TM-S47	
C39	.015	600	RCP10M1533M	P688-015		PT4E815		PT4015	4TM-S15	
C40	.1	600	RCP10M6104M	P688-1	DF-104	PT4E91		PT901	6TM-P1	
C41	.1	200	RCP10M2104M	P288-1	DF-104	PT2P1		PT401	2TM-P1	
C42	1000		80X1	BPD-001	DD-103	TM5D1	81-001	DC-531	5HK-D1	
C43	1.5		47X384	SIL.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515	5TCCB-V15	
C44	5000		47X507	BPD-005	DD-502	TM5DD5	81L-005	DC-531	5HK-D5	
C45	100		47X404	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C46	5000		47X507	BPD-005	DD-502	TM5D5	81L-005	DC-545	5HK-D5	
C47	5000		47X507	BPD-005	DD-502	TM5D5	81L-005	DC-526	5HK-D5	
C48	1000		80X1	BPD-001	DD-102	TM5D1	801-001	DC-531	5HK-D1	
C49	470	500	47X535	1468-0005	D6-471	5WS75	GP2K-471	MC345	1PM-35	
C50	.047	300	RCP10M2473M	P288-047	DF-503	PT2E847		PT4147	2TM-S47	
C51	.0047	400	RCP10M4472M	P688-0047	D6-472	PT5ED47	GP2-333-472	PT6247	6TM-D47	
C52	.0047	400	RCP10M4472M	P688-0047	D6-472	PT5ED47	GP2-333-472	PT6247	6TM-D47	
C53	.01	400	RCP10M4103M	P488-01	D6-103	PT4E81	GP2-333-103	PT4U	4TM-S1	
C54	.047	400	RCP10M4473M	P488-047	DF-503	PT4E847		PT4147	4TM-S47	
C55A	.01									
B	250		†7WX5		†PC-80		†1404-01		†109C1	
C										

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C56	.0047	600	RCP10M6472M	P688-0047	D6-472	PT5ED47	GP2-333-472	PT6247	6TM-D47	
C57	.01	400	RCP10M4103M	P488-01	D6-103	PT4E81	GP2-333-103	PT411	4TM-S1	
C58	1000		80X1	BPD-001	DD-102	TM5D1	801-001	DC-531	5HK-D1	
C59	.047	400	RCP10M4473M	P488-047	DF-503	PT4E847		PT4147	4TM-S47	
C60A	.002			P688-002		PT6ED2		PT622	+101C1	
B	.005		+76X7	P688-005	+PC-100	PT6ED5	+1405-01	PT625		
C	.005			P688-005		PT6ED5		PT625		
C61	4700	500	47X543	1464-005		IDR5D5		MCB465	MS-25	
C62	.01	400	RCP10M4103M	P488-01	D6-103	PT4E81	GP2-333-103	PT411	4TM-S1	
C63	.001		41X504	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C64	.01	600	RCP10M6103M	P688-01	D6-103	PT6E81	GP2-333-103	PT611	6TM-S1	
C65	.047	600	RCP10M6473M	P688-047		PT6E847		PT6147	6TM-S47	
C66	.1	600	RCP10M6104M	P688-1	DF-104	PT6EP1		PT601	6TM-P1	
C67	1000		80X1	BPD-001	DD-102	TM5D1	801-001	DC-531	5HK-D1	
C68	1000		80X1	BPD-001	DD-102	TM5D1	801-001	DC-531	5HK-D1	
C69	.01	400	RCP10M4103M	P488-01	D6-103	PT4E81	GP2-333-103	PT411	4TM-S1	
C70	.0047	400	RCP10M4472M	P688-0047	D6-472	PT6ED47	GP2-333-472	PT6247	6TM-D47	
C71	.047	200	RCP10M2473M	P288-047	DF-503	PT4E847		PT4147	2TM-S47	
C72	.22	200	RCP10M2224M	P488-22		PT4EP22		PT4025	2TM-P22	
C73	4700	500	47X543	1464-005		IDR5D5		MCB465	MS-25	
C74	330	500	47X570	1469-00035						Note 1
C75	330	500	47X570	1469-00035						Note 1
C76	330	500	47X570	1469-00035		SR5T3		MCB241	MS-32	
C77	270	500	RCM30A271K	1469-0003		SR5T3		MCB241	MS-32	
C78	.047	400	RCP10M4473M	P488-047	DF-503	PT4E847		PT4147	4TM-S47	
C79	1000		80X1	BPD-001	DD-102	TM5D1	801-001	DC-531	5HK-D1	
C80	.1	400	RCP10M4104M	P488-1		PT4EP1		PT401	4TM-P1	
C81	.047	400	RCP10M4473M	P488-047		PT4E847		PT4147	4TM-S47	
C82	.15	400	RCP10M4154M	P488-15		PT4EP15		TP417	4TM-P15	
C83	500	20000	47X560	HV20C	TV3-502	MM-C20T5	413-501		20DK-T5	
C84A	10000		76X8	BPD-01	DD-3-103	TM5DB1	821-01	DC-511	5HK-281	
B	10000			BPD-01			821-01	DC-511		

Note 1. Some Models use 430MMF in this application (Part #RCM20B431K)
* Items C60A, C60B, C60C, R75A, R75B, R75C are combined in one unit.
† Items C55A, C55B, C55C, R61A, R61B are combined in one unit.
When replacing items separately, C55B and C55C should total 250MMF.

CONTROLS

ITEM No	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3000Ω		78X8	QT-252*	RTV-218	SBBT-503-S	UP33L	Contrast-Panel-Note
B	1 Meg						UR16-T25	Volume Tap @ 220KΩ-Rear
C	Switch						US-26	Attach to R1B
R2A	50KΩ	½	40X282A	Q11-123	AG-44-8	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
R3A	1 Meg	½	40X291E	Q11-137	AG-81-2	AB-59	U-54	Tone
B	Shaft		Not Req.	Not Req.	RS-3/16	AK-4	Not Req.	Attach to R3A
R4A	500KΩ	½	40X290D	Q11-133	AG-58-8	AB-59	U-50	Brightness
B	Shaft		Not Req.	No Req.	RS-3/16	AK-4	Not Req.	Attach to R4A
R5A	1 Meg	½	40X291E	Q11-137	AG-81-8	AB-89	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	RS-3/16	AK-4	Not Req.	Attach to R5A
R6A	150KΩ	½	B40X331A	Q11-128	AG-53-8	AB-46	U-43	Horiz. Drive
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7	7.5Meg	½	40X363					Sync. Stability
R8A	800KΩ	½	40X363	Q11-116	AG-37-8	AB-14	SU-20	Vert. Linearity
B	Shaft		Not Req.	Not Req	FKS-1/4	AK-1	Not Req.	Attach to R8A
R9A	25Meg	½	B40X366	Q11- 139	AG-64-8	AB-83	SU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R9A

Note Some models use alternate dual control (Part No. 87X13)
* CONCENTRITE EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B17-112 & P1-204 (Panel)
B13-137X & R2-216 (Rear), & SWITCH T8-1.

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R10	3900Ω	½	12A-048	BTS-3900	
R11	47KΩ	½	12A-038	BTS-47K	
R12	10KΩ	½	12A-040	BTS-10K	
R13	2200Ω	½	12A-049	BTS-2200	
R14	4700Ω	½	12A-042	BTS-4700	
R15	220KΩ	½	12A-041	BTS-220K	
R16	15KΩ	½	12A-021	BTS-15K	
R17	10KΩ	½	12A-040	BTS-10K	
R18	4700Ω	½	12A-042	BTS-4700	
R19	8200Ω	½	B83822		
R20	470-5%	½	B83470		
R21	1000Ω	½	B85102	BTS-1000	
R22	1000Ω	½	B85102	BTS-1000	
R23	150Ω	½	B85151	BTS-150	
R24	22KΩ	½	B83223	BTS-22K	
R25	470-5%	½	B83470		
R26	1000Ω	½	B85102	BTS-1000	
R27	150Ω	½	B85151	BTS-150	
R28	22KΩ	½	B83223	BTS-22K	
R29	180Ω	½	B84181	BTS-180	
R30	1500Ω	½	B84152	BTS-1500	
R31	4700Ω-5%	½	B83472	BTS-4700-5%	
R32	100KΩ	½	B84104	BTS-100K	
R33	320KΩ-5%	½	B83334	BTS-330K-5%	
R34	3.9Meg-5%	½	B83395	BTS-3.9Meg-5%	
R35	470KΩ	½	B84474	BTS-470K	
R36	47KΩ	½	B84473	BTS-47K	
R37	33KΩ	½	B84333	BTS-33K	
R38	5800Ω	½	C84582	BTA-5800	
R39	1500Ω	½	B84152	BTS-1500	
R40	1 Meg	½	B84105	BTS-1 Meg	
R41	100Ω	½	B84101	BTS-100	
R42	3900Ω-5%	½	C84392	BTA-3900-5%	
R43	1 Meg	½	B84105	BTS-1 Meg	
R44	100KΩ	½	B85104	BTS-100K	
R45	22KΩ	½	B84223	BTS-22K	
R46	100KΩ	½	B85104	BTS-100K	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R47	2200Ω	½	B84222	BTS-2200	
R48	47KΩ	½	B85473	BTS-47K	
R49	100Ω	½	B84101	BTS-100	
R50	1000Ω	½	B85102	BTS-1000	
R51	56KΩ	½	B84563	BTS-56K	
R52	100KΩ	½	B84104	BTS-100K	
R53	1000Ω	½	B85102	BTS-1000	
R54	33KΩ	½	B84333	BTS-33K	
R55	270Ω	½	B84271	BTS-270	
R56	68KΩ	½	B84683	BTS-68K	
R57	22KΩ	½	B84223	BTS-22K	
R58	22KΩ	½	B84223	BTS-22K	
R59	68KΩ	½	B84683	BTS-68K	
R60	10 Meg	½	B85108	BTS-10 Meg	
R61A	500KΩ		† 76X5		
B	500KΩ	½			
R62	47KΩ	1	B85473	BTS-47K	
R63	330Ω	1	C84331	BTA-330	
R64	1000Ω	3	D84102	BTB-1000	
R65	47KΩ	1	B84473	BTS-47K	
R66	10KΩ	½	B84103	BTS-10K	
R67	270KΩ	½	B84274	BTS-270K	
R68	1.5Meg	½	B84155	BTS-1.5Meg	
R69	68KΩ	½	B84683	BTS-68K	
R70	820KΩ	½	B84824	BTS-820K	
R71	22000-5%	½	B83222	BTS-2200-5%	
R72	3300Ω	½	B84332	BTS-3300	
R73	22000-5%	½	B83222	BTS-2200-5%	
R74	1000Ω	½	C84102	BTA-1000	
R75A	22KΩ	½		BTS-22K	
B	8200Ω	½	76X7	BTS-8200	
C	8200Ω	½		BTS-8200	
R76	1.5Meg	½	B84155	BTS-1.5Meg	Note
R77	470KΩ	½	B85474	BTS-470K	
R78	2.2Meg	½	B84225	BTS-2.2Meg	
R79	180KΩ	½	B84184	BTS-180K	
R80	2.2Meg	½	B84225	BTS-2.2Meg	
R81	10KΩ	½	B84103	BTS-10K	

RESISTORS (CONT.)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R82	2.2Meg	½	B84225	BTS-2.2Meg	
R83	820Ω	½	B84821	BTS-820	
R84	3300Ω	½	C84332	BTA-3300	
R85	100KΩ	½	B84104	BTS-100K	
R86	100KΩ	½	B84104	BTS-100K	
R87	4.7Meg	½	B85475	BTS-4.7Meg	
R88	27KΩ	½	B83273	BTS-27K	
R89	470KΩ	½	B85474	BTS-470K	
R90	6800Ω	½	B84682	BTS-6800	
R91	6800Ω	½	B84682	BTS-6800	
R92	33KΩ	½	B84333	BTS-33K	
R93	5100Ω-5%	½	C83512	BTA-5100-5%	
R94	18000-5%	½	B83182	BTS-1800-5%	

ITEM No	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R95	150KΩ	½	B83154	BTS 150K	
R96	220KΩ	½	B82224	BTS-220K	
R97	5600Ω	½	B84562	BTS-5600	
R98	470KΩ	½	B84474	BTS-470K	
R99	1000	2	D84101	BW-2-100	
R100	7500Ω	2	D84572		Note 2
R101	2.2Ω	1	C85105		
R102	1 Meg	½	B84105	BTS-1Meg	
R103	10KΩ	5	43X272	1 3/4A-10K	
R104	1500Ω	15	43X275	2D-1500	
R105	100KΩ	½	B85104	BTS-100K	
R106	270KΩ	½	B85274	BTS 270K	

† Items R61A, R61B, C55A, C55B, C55C are combined in one unit.
* Items R75A, R75B, R75C, C60A, C60B, C60C are combined in one unit.
Note 1. Some models use a 1.8 Meg resistor in this application.
Note 2. Some models use a 3.3Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @1.8A	560VCT @270A	5VAC @3A	6.3VAC @1.2A Sec. 4 6.3VAC @.8.2A		P-8167 ①			

① Drill new mounting holes.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	MERIT * PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	190Ω	100Ω	54X8	A-8125	A-3000 ①	TB-U 2 ②	A-97X	Vert. Osc. Trans.
T3	346Ω tap & 51Ω 8.5Ω,17Ω	8.5Ω Sec #2 0Ω	53X328					Horiz. Output Trans
T4	1500Ω tap a 4.5Ω 46.5Ω	29.5Ω	51X156	A-8141	A-3039		A-104X	Vert. Output Trans.
T5A	20Ω		9A226†	DY-5A	MDP-70	TY-3	Y-17	Horiz. Deflection Coils.
B	50Ω							Vert. Deflection Coils

① Drill one new mounting hole.
② Mount on top of chassis.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T6	7.4KΩ	3.7Ω	490Ω	7Ω	51X151	A-8114	A-3020	RO-302	S-7X	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP	REPLACEMENT DATA: TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	8"	PM	3.7Ω	C12A447 12A504 †	SI-015 Mod P8-V	8A31	† 6"PM Speaker

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE @ CURRENT	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	270A	45Ω	1 @ 87Hy	52X90A	C-2326	C-2991	TR-733 †	C-17X

† Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	MERIT PART No.	NOTES
L2	Ant Coil	0Ω		9A2278-1		Channel 2.
L3	F.L. Choke	0Ω		34A-546		
L4	PF Mixer					
	Grid&Osc Coil	0Ω		9A2279-1		Channel 2.
L5	F.I. Choke	0Ω		34A579		
L6	1st Video IF	.8Ω		31A-078	TV-102*	
L7	F.I. Choke	0Ω		9A2033		
L8	2nd Video IF	.3Ω	.2Ω	9A2230		
L9	F.I. Choke	0Ω		9A2033		
L10	3rd Video IF	.3Ω	.2Ω			
L11	F.I. Choke	0Ω				
L12	RF Choke	3.5Ω		9A1979	TV-180	36 Microhenries.
L13	4th Video IF	.1Ω		9A2225	TV-101	Includes Trap.
L14	Series Peaking Coil	8Ω			TV-181	60 Microhenries; wound on 22K Resistor.
L15	Shunt Peaking Coil	25Ω		36A11	TV-188	500 Microhenries.
L16	4.5MC Trap	.3Ω		9A2074	TV-151	
L17	Series Peaking Coil	2.5Ω		9A1979	TV-180	36 Microhenries.
L18	Shunt Peaking Coil	8Ω		36A16	TV-181	80 Microhenries; wound on 1.5K Resistor.
L19	Series Peaking Coil	12.5Ω			TV-184	160 Microhenries; wound on 22K Resistor.

PARTS LIST AND DESCRIPTIONS (Continued)

RF-IF COILS (CONT.)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	TRUETONE PART No.	MERIT PART No.	
L20	Shunt Peaking Coil	14Ω		36A13	TV-184†	190 Microhenries; wound on 3.9K Resistor.
L21	1st Sound IF	2.5Ω		9A2168		
L22	2nd Sound IF	1.6Ω	1.6Ω	9A2170	TV-113	
L23	Ratio Det.	3.5Ω	.5ΩCT	9A2269	TV-110▲	Tertiary winding - .35Ω
L24	Horiz. Osc.	65Ω		9A2096	TV-163	
L25	Width Coil	.6Ω		9A2183	MWC-2*	*Enlarge mounting hole.
L26	Horiz. Lin.	15Ω		9A2262		

■ Parallel with 22K Resistor.
† Parallel with 3.9K Resistor.
▲ Drill one new mounting hole.
● Parallel with 1.5K Resistor.

FUSES

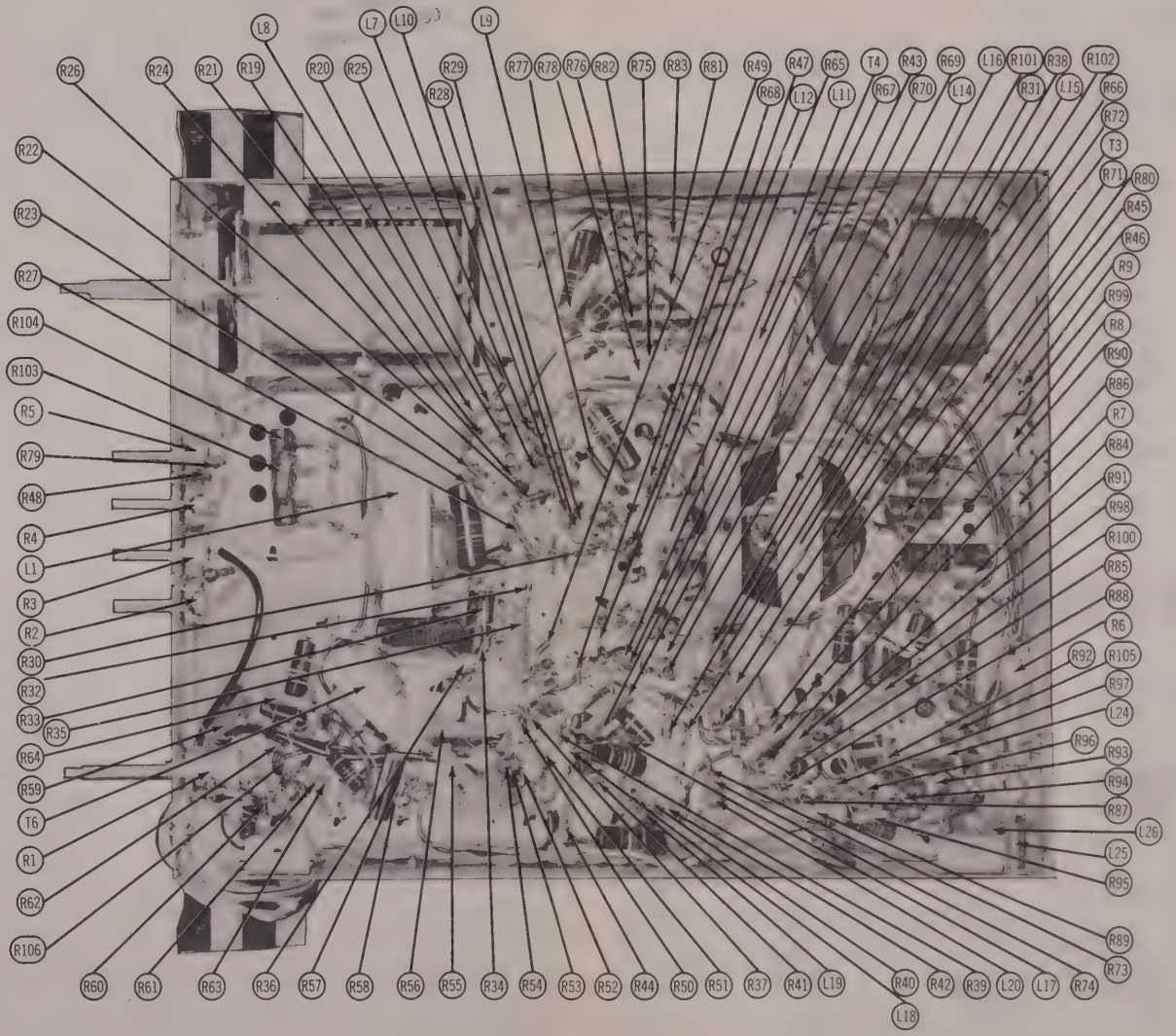
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TRUETONE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG Slo-Blo	4/10A. 125V.	16X147-3	16X146	313.400	357001	MDL-4/10	4405

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					TRUETONE PART No.		
M2	Bayonet	7.5	.2	White	7A32		Type #51

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M3	RF Tuner	25A1080-B	
M4	Centering Magnet	2A419	
M5	Ion Trap	2A421	



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

L. [illegible] OF
[illegible] SHIP,
3824 MEADE ST.
DENVER, COLORADO

WESTINGHOUSE MODELS H-372P4, H-373P4, H-376P4 (Ch. V-2182-1), H-377

WESTINGHOUSE MODELS H-372P4, H-373P4, H-376P4 (Ch. V-2182-1), H-377

TRADE NAME	Westinghouse Models H-372P4,H373P4,H-376P4 (Ch. V-2182-1) To be used with optional Power Supply Model H-377
MANUFACTURER	Westinghouse Elect. Corp., TV-Radio Div., Sunbury, Pa.
TYPE SET	Battery Operated Superheterodyne Receiver With Optional Plug-In Power Supply Unit.
TUBES (Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det-AVC-AF Amp., 3V4 Addio Output
POWER SUPPLY	1.5 Volt "A" Supply & 67.5 Volt "B" Supply (or) 110-120 Volts AC (Optional Power Supply)
RATING	250 MA @ 1.5Volts DC & 8 MA @ 67.5 Volts DC (or) 40MA @ 117 Volts AC (Optional Power Supply)
TUNING RANGE--BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher that necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01 MFD	High side to stator of RF section of tuning gang. Low side to chassis.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1400KC	1400KC	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver Adjust for maximum output while rocking tuning gang.
3.		"	600KC	600KC	"	A6	Adjust for maximum output while rocking tuning gang. Repeat steps 2 and 3.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		Westinghouse PART No.	STANDARD REPLACEMENT		
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det. AVC-AF Amp.	1U5	1U5	6BW	
V4	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	20	150	V-6321-3	PRS150/20		BR2015A		TC45	TVA-1410	
C2A	■1500	3	V-11184-1	E3C429					TVL-3015	
B	▲1500	3								
C	1500	3								
C3	10	90	V-6321-2	SRE150/10		BBR-10-90			TVA-1406	
C4	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C5	4		V-10710-4							
C6	1500		V-9863-4	BPD-0015	DD-152	TM5D15	801-0015	DC-5215	5HK-D15	
C7	100		V-10710-5	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C8	.05	200	RCP10W2503M	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C9	2000		V-9863-2	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C10	100		V-10710-5	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C11	5000		V-5596	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C12	2000		V-9863-2	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C13	2000		V-9863-2	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C14A	5000		V-9044-1	811-005	DD-2-502	TM5D5	811-005	DC-525	5HK-D5	
B	5000			811-005		TM5D5	811-005	DC-525	5HK-D5	

CONTROLS

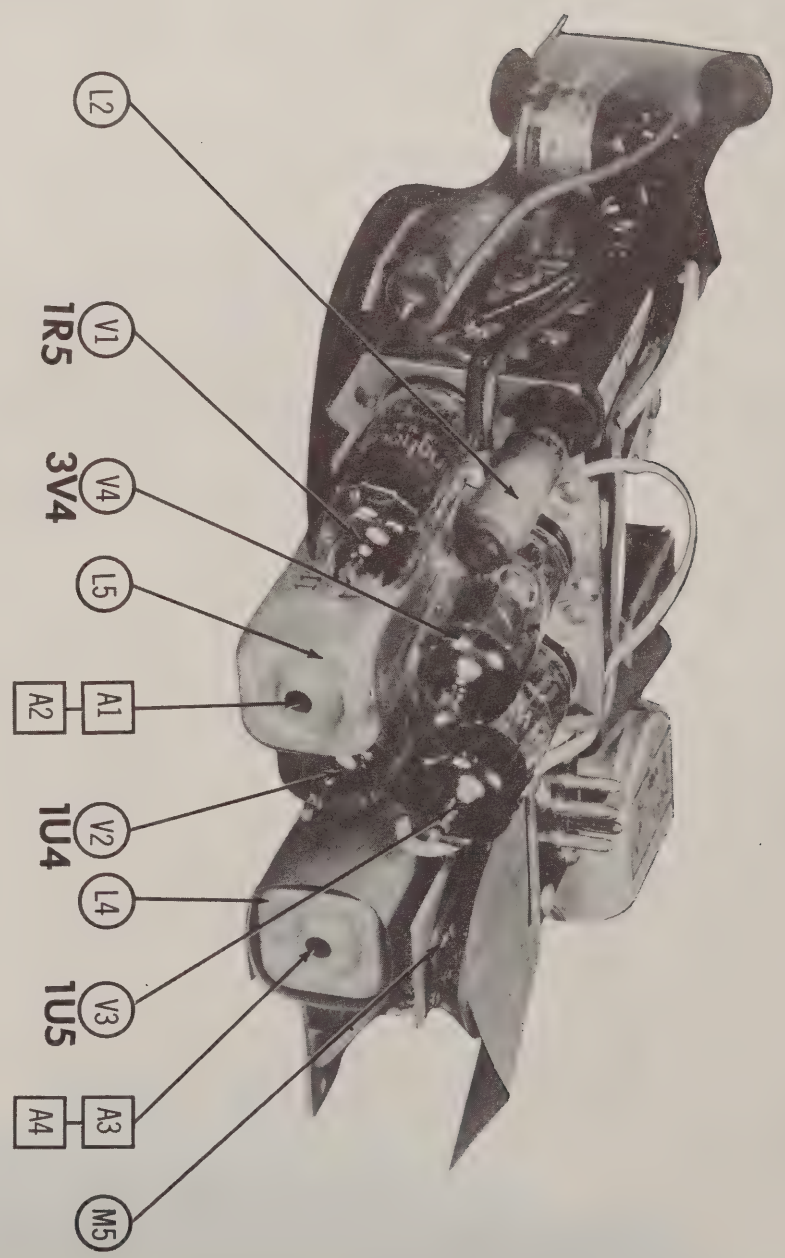
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Westinghouse PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1	2Meg	½	V-11129-1					Volume and switch
R2	8Ω	1	V-11345-1					Filament voltage

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Westinghouse PART No.	IRC PART No.	
R3	100KΩ	½	RC20AE104K	BTS-100K	
R4	15KΩ	½	RC20AE153K	BTS-15K	
R5	4.7Meg	½	RC20AE475M	BTS-4.7Meg	
R6	3.3Meg	½	RC20AE335M	BTS-3.3Meg	
R7	47KΩ	½	RC20AE473M	BTS-47K	
R8	10 Meg	½	RC20AE106M	BTS-10 Meg	
R9	4.7Meg	½	RC20AE475M	BTS-4.7Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Westinghouse PART No.	IRC PART No.	
R10	1 Meg	½	RC20AE105M	BTS-1 Meg	
R11	3.3Meg	½	RC20AE335M	BTS-3.3Meg	
R12	390Ω	½	RC20AE391K	BTS-390	
R13	56Ω	1	RC30AE560K		
R14	4700Ω	1	RC30AE472K	BTA-4700	
R15	3.9Ω	1	V-6067-10		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .04A	10VCT .250ADC	155V @ .017A		V-11304				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	10.2KΩ	12.8Ω	430Ω	1.58Ω	V-11139		A-2900 ①	R0301 ①		① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	JENSEN PART No.	QUAM PART No.	
SP1	2" x 3"	PM	12.8Ω	V-11135			

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	Westinghouse PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.225A	2.7Ω	47MH	V-11303				

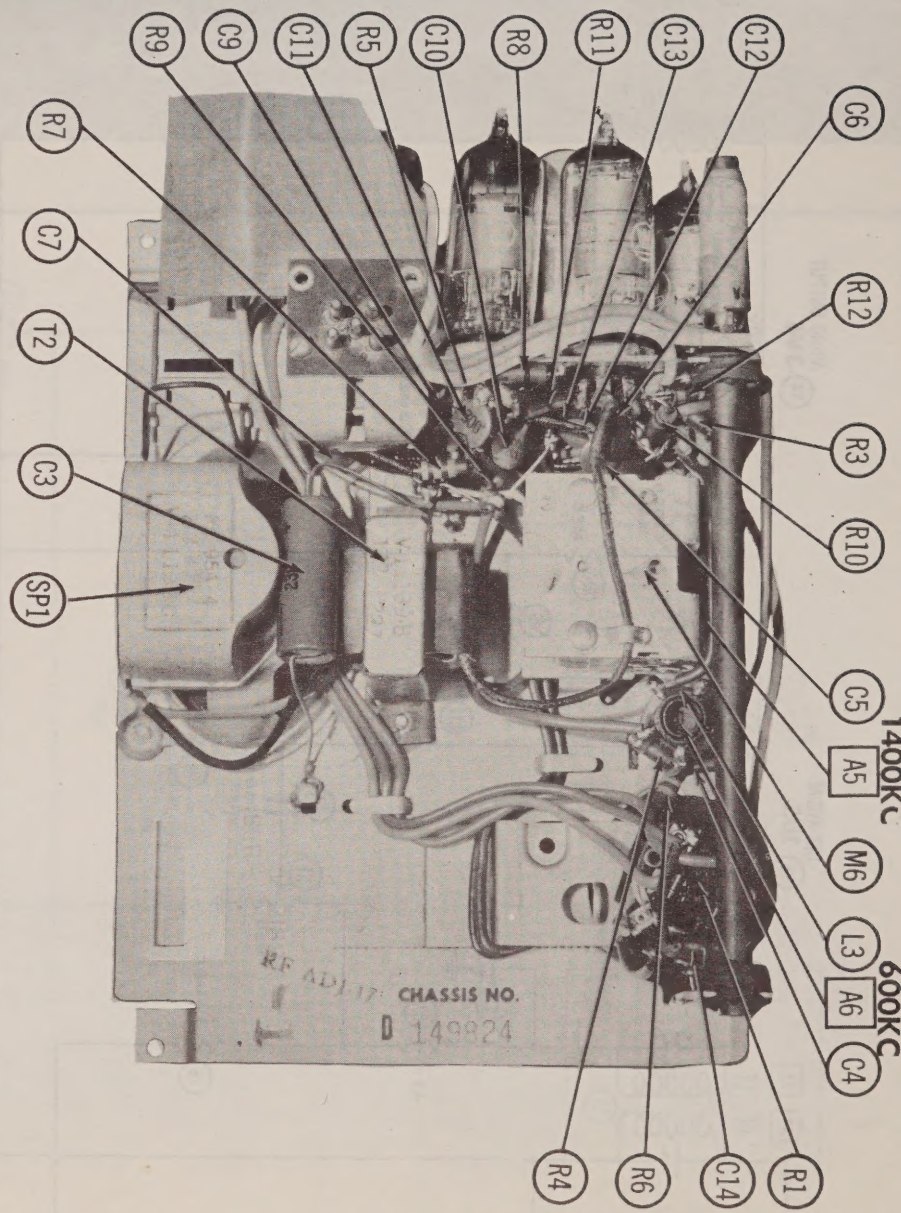
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Westinghouse PART No.	MERIT PART No.	
L2	Loop Ant.	1.8Ω		V-11132-1		
L3	Osc. Coil	.8Ω	6Ω	V-11128-1		
L4	Input IF	22Ω	21Ω	V-11138-1	BC-352	
L5	Output IF	21Ω	21Ω	V-11138-2	BC-353	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	Westinghouse PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.250A	V-11302			403C1EX1		
M2	.017	V-11189			1159		

CHASSIS—BOTTOM VIEW



PROPERTY OF
[illegible] FRANKENSTEIN
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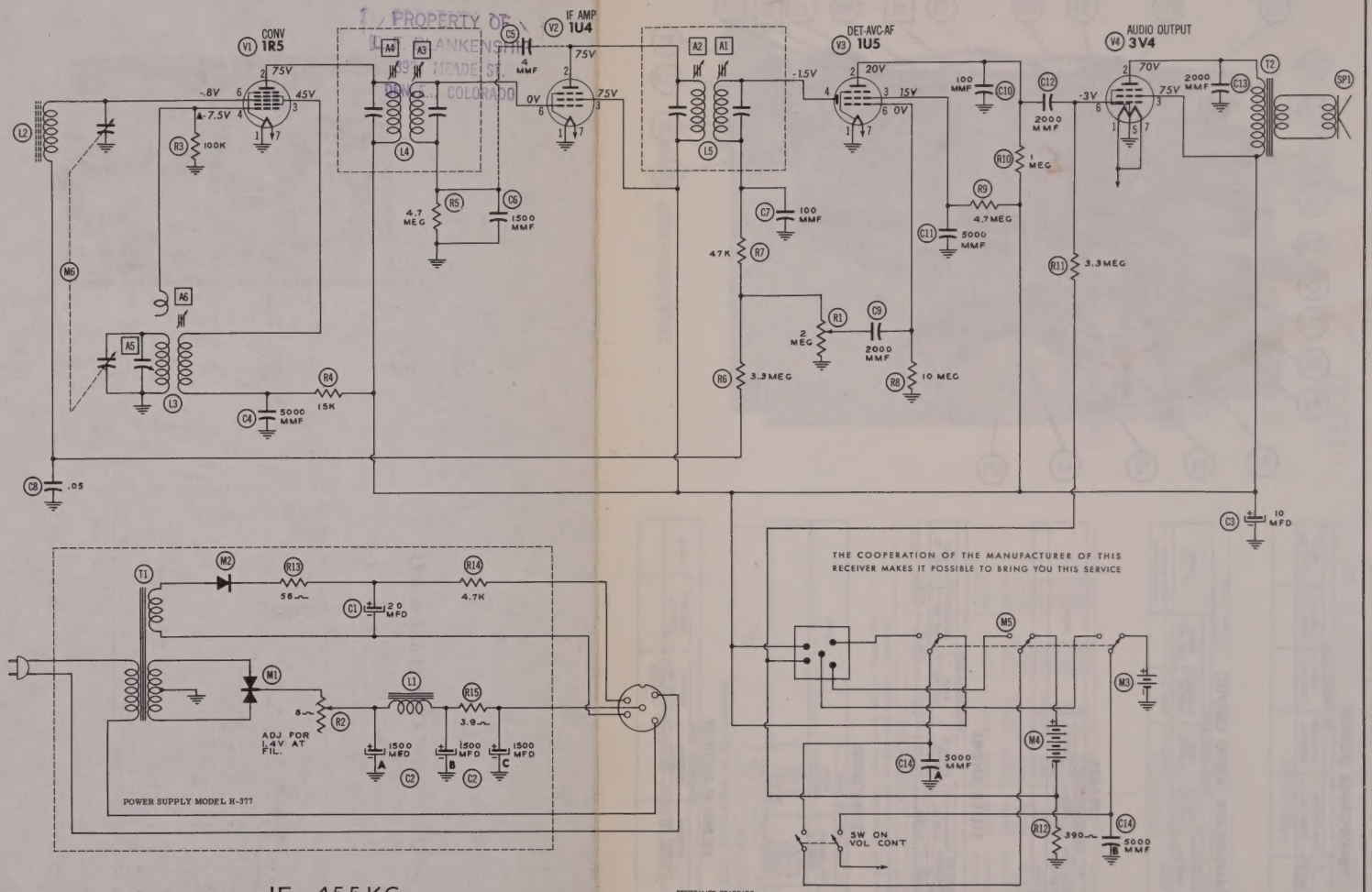
DENVER, COLORADO



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

IF=455KC

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0Ω	†4.8KΩ	†20KΩ	100KΩ	0Ω	5.3 Meg	*
V 2	1U4	0Ω	†4.8KΩ	†4.8KΩ	2 Meg	0Ω	4.7Meg	*
V 3	1U5	0Ω	†1 Meg	†4.7Meg	2.5Meg	55Ω	10 Meg	*
V 4	3V4	*	†5.2KΩ	†4.8KΩ	390Ω	0Ω	3.3Meg	*

† MEASURED FROM OUTPUT OF M2
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
▲ TAKEN WITH VACUUM TUBE VOLTMETER

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown at bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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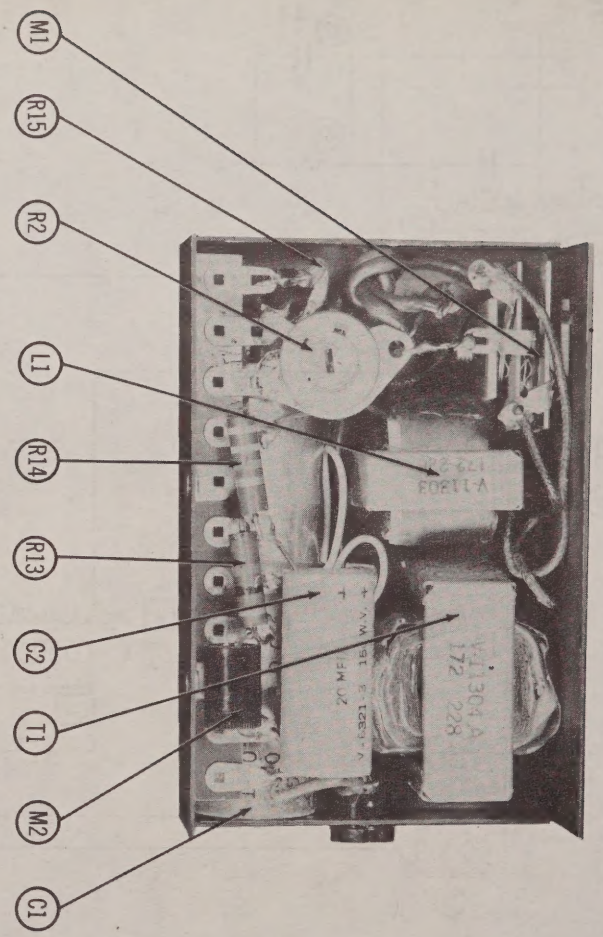
PARTS LIST AND DESCRIPTIONS (Continued)

BATTERIES

ITEM No.	VOLTAGE	Westinghouse PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M3 M4	1.5V 67.5V		950	467		2R	XX45		

1.5V. @ .25A
67.5V. @ .008A

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M5	Switch	V-11137-1	Battery-AC power pack selector
M6	Tuning Capacitor	V-11126-1	(2-259MMF, 10-189MMF)
	Cabinet Assembly	V-11174-1	Red Model H-372P4
	Cabinet Assembly	V-11174-2	Brown Model H-373P4
	Cabinet Assembly	V-11174-3	Beige Model H-376P4
	Dial	V-11111-1	Model H-372P4
	Dial	V-11111-2	Model H-373P4
	Dial	V-11111-3	Model H-376P4
	Knob	V-11112-1	Model H-372P4
	Knob	V-11112-2	Model H-373P4
	Knob	V-11112-3	Model H-376P4
	Plug Assembly	V-11133-1	AC power (includes B battery cable)
	Cable Assembly	V-11296-1	AC power supply

CHASSIS - BOTTOM VIEW - MODEL H-377